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# **Developing Optimism: A Cognitive-Behavioural Intervention to Reduce Stress**

by

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PhD

The University of Edinburgh

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## **Declaration**

I hereby declare that:

1. The following thesis was composed by myself, Danielle Bryant
2. The work presented in this thesis is all my own
3. The work presented in this thesis has not been submitted for any other degree, diploma or professional qualification

Danielle Bryant

September 2010

## **Abstract**

Optimistic explanatory style refers to the way in which individual's routinely attribute cause to the events in their lives (Ambramson et al., 1978) and can be successfully enhanced through the use of cognitive behavioural therapy (CBT) group-based workshops (Buchanan et al., 1999; Seligman et al., 2007). It has been successfully measured via the self-report Attributional Style Questionnaire (ASQ: Peterson et al., 1982) and has been associated with better performance and lower levels of state anxiety following negative feedback (Martin-Krumm et al., 2003), a lower incidence of stress-related physical illness (Jackson et al., 2002; Buchanan et al., 1999), and lower levels of job-related emotional distress (Hershberger et al., 2000). In 2005, teaching was identified as the second most stressful job undertaken within the UK (Johnson et al., 2005) and two independent reviews of the teacher-stress literature both concluded that further research is required to develop effective stress-management interventions (Kyriacou, 2000; Jarvis, 2002). Furthermore, Jarvis (2002) specifically highlights CBT-based interventions as an avenue which requires research within the teacher-stress domain. In 2005, Bryant (unpublished MSc thesis) highlighted a link between optimistic explanatory style and lower levels of stress in student Physical Education (PE) teachers who were undergoing the practicum element of their one-year postgraduate diploma of education. The current thesis explored the effectiveness of a CBT-based optimism training programme in developing optimism and reducing stress in student and neophyte PE teachers.

A longitudinal, repeated-measures, mixed methods design was employed in a naturalistic setting. Using a pre-test, intervention, post-test design, the effects of CBT-

based training were shown to enhance optimism and positive affectivity, and reduce cognitive stress in student teachers during the practicum element of their professional training. To strengthen causal links, a dose-response design was used to provide enhanced training to a sub-group of student teachers. Although differences in optimism and perceived cognitive stress were present in the results, they were not significant. Finally, a qualitative interview based follow-up study identified that participants who had received the prolonged CBT-based optimism training exhibited higher levels of optimistic explanatory style, lower levels of stress and more dispositional optimism than participants who received either the initial or no optimism training. Theoretical and practical implications of the current findings and directions for future research are discussed.

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## **Chapter 1**

### **Introduction**

The current thesis presents a series of studies which were conducted to explore the impact of Cognitive Behavioural Therapy (CBT) based interventions on optimism and perceived stress in student-teachers. Such interventions have not been explored within the teaching domain before and, as such, the current research will add to current knowledge in psychology and offer practical implications for professional practice in teacher education and managing stress in occupational contexts. The following chapter outlines the theoretical approaches in psychology which underpin the current thesis, highlighting the movement within the discipline which led to the development of positive psychology, describing intervention techniques used in psychology and emphasising the importance of conducting naturalistic research in highly stressful occupations such as teaching.

#### **1.1. Theoretical Approaches in Psychology**

During the early stages of its existence as a separate discipline, psychology was organised around several separate schools such as behaviourist, cognitive and psychodynamic (Malim & Birch, 1998). Each school of thought presented clear ideas of what psychology should study and how it should study it. In current times, however, the discipline of psychology has realised and accepted that the questions which psychologists are attempting to answer will not be fully understood by one particular idea or method. It is becoming more accepted that

different methodologies must be employed if complete understanding of psychological functioning is to be accomplished (Malim & Birch, 1998). Consequently, many psychologists apply a multi-dimensional focus to their work. However, many of the early ideas, presented by the initial schools of thought, continue to influence modern-day approaches to psychology. Such approaches present guidelines for psychologists regarding the basic assumptions of what human beings are like, theories of human behaviour, and the kinds of research methods that can be used to study them (Milam & Birch, 1998). When conducting psychological research or intervention it is important to understand which approaches shape the work being done.

#### *1.1.1. The Behaviourist Approach*

The behaviourist approach (also known as learning theory) focuses on the influence of the environment on human behaviour. Behaviourism believes that humans are shaped through their constant interactions with the environment, and that behaviour is determined largely through a stimulus-response, and later a response-consequence, process. Such beliefs are rooted in the works of associationists such as Pavlov's classical conditioning (1927) and Skinner's operant conditioning (1950). Behaviourism had a large impact on the direction of psychological research during the first half of the 20<sup>th</sup> century and is still influential today (Milam & Birch, 1998). However, behaviourism chose not to investigate the mental processes which occur between the stimulus and response. Consequently, although the behaviourist approach has contributed to the understanding of how behaviours are learnt, and how undesirable behaviours can



be changed, the approach has been challenged because it was felt that it was overly mechanistic and overlooked the influence of consciousness and subjective experience, an issue referred to as the 'blackbox'. By ignoring the mediating effects of cognitive processes on the stimulus-response behaviour, behaviourism fails to account for the importance of individual differences. This lack of ability to explain the mental processes of human beings led to the emergence of the cognitive approach.

### *1.1.2. The Cognitive Approach*

The cognitive approach presents a stark contrast to the assumptions and methodology of the behaviourist approach, in part because it emerged as a reaction against the behaviourists' emphasis on external events. Cognitive psychologists believe that behaviour cannot be fully explained in terms of stimulus-response connections (Glassman & Hadad, 2004). Rather, cognitive psychologists emphasise the importance of the human mind, and have focused their work on understanding the mental processes which affect human behaviour and enable individuals to make sense of the world around them (Milam & Birch, 1998). Cognitive psychology highlights the fact that the same events can have different meaning to various individuals and, in this sense, the cognitive approach views the person as being at least as important as the environmental stimuli in the understanding of behaviour (Glassman & Hadad, 2004).

One of the general beliefs of cognitive psychology is that mental processes do not operate randomly but rather in an organised and systematic way. As such,

the human mind has often been compared to a computer, and human beings regarded as information processors within the cognitive approach (Milam & Birch, 1998). Cognitive psychologists embraced this approach in the study of cognitive processes such as memory, language and problem solving. This may appear overly focused on cognition and subsequently irrelevant for furthering understanding of behaviour. However, cognitive psychologists have also been active in exploring the mediating processes which guide behaviour (Glassman & Hadad, 2004). This active approach to focusing on the relationship between the environment, thoughts and behaviour has led to the use of the term cognitive-behavioural approach.

An additional factor to consider in exploring the relationship between cognitions and behaviour is the impact of emotions. Early cognitive and behaviourist work does not account for the process by which emotions are generated and subsequently impact on behaviour. The idea that cognitive appraisals influence our emotions was studied, for example, by Lazarus (1993) who suggested that emotions are the direct result of an individual's appraisal of the current environmental situation and how it will impact on their current well-being or future goals. According to Carver and Scheier (1982), appraisals of how external stimuli will impact upon the attainment of desirable goals will subsequently guide effort and behaviour towards those goals. As such, it has become apparent that in order to fully understand the importance and mediating effect of cognitive processes, researchers must also consider the roles of emotions and behaviour. In order to accomplish this, the current thesis embraces a cognitive-behaviour approach to psychology.

## **1.2. Positive Psychology**

Originally, psychology had three main aims: curing mental illness, making the lives of all people more productive and fulfilling, and identifying and nurturing high talent (Seligman & Csikszentmihalyi, 2000). Following World War II the main focus of psychology shifted onto healing: repairing damage and operating within a disease model of human functioning (Seligman & Csikszentmihalyi, 2000). The majority of resources available in the development of psychological knowledge and professional practice were directed towards the theory and practice of treating mental illness. Whilst this cultivated many benefits in the field of mental illness, it also meant that the latter two aims of psychology were overlooked for the best part of half a century. Psychologists began to regard individuals as passive recipients in a largely stimulus-response type existence in which stimuli occurred and elicited responses which were strengthened or weakened by external reinforcements (Seligman & Csikszentmihalyi, 2000), reflecting a largely behaviourist approach. The emergence of a movement towards positive psychology was a reminder that psychology is not merely the study of pathology, weakness and damage; it is also the study of strength and virtue (Seligman & Csikszentmihalyi, 2000). Positive psychology is an umbrella term for the study of positive emotions, positive character traits, and enabling institutions (Seligman, Steen, Park & Peterson, 2005). It is a growing movement within psychology that places greater emphasis on building strengths and competencies opposed to merely treating deficits and disorders. Ultimately the movement of positive psychology emphasises the importance that psychological

practice concern not only fixing what is broken, but also enhancing functioning and nurturing what is best.

The development of positive psychology was preceded by a decade of interest in prevention: how could psychologists prevent mental illnesses opposed to simply focussing on the cure. As Seligman & Csikzentmihalyi (2000) point out, the major leaps in prevention came from focussing on systematically building competency, not simply correcting weakness. This refers to the necessity to investigate both the negative and positive characteristics associated with mental illness in order to enhance the positive characteristics whilst minimising the negative. The concept of building on strengths sits at the core of positive psychology and involves reinforcing valued subjective experiences, enhancing positive personality characteristics and installing civic virtues. Within positive psychology the individual is regarded as being actively involved in their perceptions and responses to the world. Seligman & Csikzentmihalyi (2000) emphasized that individuals are decision makers, with choices, preferences and the potential to become masterful or, in malignant circumstances, helpless and hopeless. Whilst these were not necessarily new concepts or research, the ideas coalesced under the new organising movement of Positive Psychology. The acceptance that an individual's cognitive processes are important when interacting with the world is reflected in both psychological theories and practice, and is present in the numerous positive psychology based interventions which have emerged since 2000 (Seligman et al., 2005).

### *1.2.1. Positive Psychology Based Interventions*

The explosion of research into positive psychology has been accompanied by the development of psychological interventions aimed at increasing individual positive emotions, such as happiness (Seligman et al., 2005), and individual characteristics, such as optimism (Seligman, 2006; Seligman, Schulman & Tyron, 2007). In a review of progress within the positive psychology movement, Seligman et al. (2005) collated and assessed the effectiveness of five such happiness interventions on 411 individuals who were recruited, and participated, online. In order to do this they employed a pre-test, intervention, post-test design, measuring both happiness (using the Steen Happiness Index) and depressive symptoms (as measured by the Centre for Epidemiological Studies-Depression Scale symptom survey) as the dependant variables. The interventions included exercises that encouraged participants to acknowledge and focus on their personal strengths and the positive occurrences in their day to day lives. For example, one intervention required participants to record three things that went well each day, and the factors they believed caused that event, for a week. In another intervention, participants were asked to write about a time when they were at their best, highlighting the personal strengths displayed. The results highlighted that these kinds of interventions can improve reported levels of individual happiness and decrease depressive symptoms. Seligman et al. (2005) speculate that happiness exercises may prove therapeutic in depressive disorders and argue psychotherapy should be used to discuss, and build on, an individual's strengths as well as identifying and attempting to alleviate problems and weaknesses. Despite the positive results, the argument that strengths should

be focussed on within psychotherapy still indicates that these methods will be employed once an individual is already displaying symptoms of a mental illness such as depression. By focusing on individuals with, or displaying symptoms of, mental illness psychology is focussing on a minority population. As such, the majority of the population would appear not to be served by psychology and its benefits. In order to make the lives of all people more productive and fulfilling, and identify and nurture high talent, such interventions should be applied to individuals who are not displaying depressive or other such negative symptoms. Since the mid-80s the discipline of sports psychology has been using interventions and mental skills training to enhance performance of even the top athletes.

### **1.3. Cognitive Behavioural Therapy**

Cognitive Behavioural Therapy (CBT) is a psychotherapeutic approach which aims to influence dysfunctional emotions, behaviours and cognitions through a goal orientated, systematic procedure (Neenan & Dryden, 2004). Several psychological techniques share their roots with both behaviouristic learning theory and cognitive psychology and, as such, have gathered together under the umbrella term CBT. Within the field of CBT, the most popular and best-validated approach is that of Cognitive Therapy (Neenan & Dryden, 2004). Cognitive Therapy aims to reduce a client's emotional distress by helping them to identify, examine and modify distorted and maladaptive thinking that can underlie their distress. The concept that individuals are actively involved in constructing their reality, and not just passive recipients of environmental and

biological influences, is at the heart of the cognitive therapy model (Beck, 1995). Cognitive Therapy is based on the assumption that it is not the events that happen to an individual but, rather, the meanings that they attach to those events that will determine their subsequent feelings and behaviour. This view is reflected in the following quote from psychologist and Auschwitz survivor Viktor Frankl (1985):

*“Everything can be taken from a man but one thing: the last of the human freedoms – to choose one’s attitude in any given set of circumstances, to choose one’s own way” p104.*

Initially focused on research into and the treatment of depression, the last two decades have witnessed the application of Cognitive Therapy to an ever increasing number of disorders.

As a measure of the validity of this technique, the National Institute for Health and Clinical Excellence (NICE) has now approved the use of CBT within the UK National Health Service (NHS) and published guidelines commissioning CBT as the primary treatment of mental health disorders such as depression, Obsessive Compulsive Disorder (OCD), Post Traumatic Stress Disorder (PTSD) and anxiety in primary care (NICE Commissioning Guide, 2008). Consequently, with CBT now available through the NHS there has been a commensurate increase in funding available for the employment and training of CBT therapists referred to as ‘IAPT’: Increasing Access to Psychological Therapies (BBC News online article, 2007). Although the majority of media attention on CBT has focussed on the treatment of mental illnesses, research has shown that CBT can

be used to successfully enhance individual characteristics, such as learned optimism. CBT-based approaches can be applied to modify cognitive appraisals in order to develop learned optimism in individuals who are at risk of developing depression (Buchanan, Gardenswartz & Seligman, 1999; Seligman, et al., 2007). However, there is no known research surrounding the use of CBT to enhance optimism in individuals who are not at risk of developing depression. The exploration of whether CBT may be used to help enhance optimism in individuals who are not at risk of developing depression and subsequently “buffer” them against mental health problems and enhance well being requires further research.

#### **1.4. Stress in Teaching**

Stress is a long established issue within teaching. Almost ten years ago the first teacher successfully sued the government for illness caused by the stress of work and was awarded £47,000 in compensation. Subsequently the National Union of Teachers (NUT) has backed over 90 successful claimants for compensation for stress related illness (Hill, 2008). The statistics regarding stress in teaching have worsened since 1998, with an estimated 200,000 days off being claimed due to job-related stress, anxiety or depression in 2004. This is stated to have cost schools over £19 million (Hill, 2008).

In the past decade stress has had a profound impact on the retention of teachers throughout the United Kingdom (Montgomery & Rupp, 2005). The number of teachers retiring early has almost doubled in recent years: the academic year



2007/08 saw 10,270 teachers leave the profession prematurely compared to 5,580 in 1998/99 (Hill, 2008). This shows an 84% increase in nine years. The negative effects of stress are also evident in teacher educator courses. In 2000, Chambers & Roper reported that providers of one-year, subject-specific teacher educator courses had witnessed a drop in recruitment along with an increasing withdrawal rate. Subsequent interviews with individuals who had dropped out of such Post Graduate Certificate of Education (PGCE) courses highlighted stress as a main cause of withdrawal, with stress experienced whilst in schools on teaching experience placements identified as the primary influence (Chambers & Roper, 2000).

Teaching is commonly regarded as a profession with a high incidence of occupational stress (Jarvis, 2002). Kyriacou (2001) defines teacher stress as “the experience by a teacher of unpleasant, negative emotions such as anger, tension, frustration or depression, resulting from some aspect of their work as a teacher” (p 28). Several sources of teacher stress have been identified within the workplace, including issues such as: time pressure, workload, dealing with change, unmotivated & unruly pupils, environmental conditions, and staff (see for example: Travers & Cooper, 1996; Benmansour, 1998; Pithers & Soden, 1998). Personality has also been associated with burnout dimensions in teaching (Kokkinos, 2007). Individual teachers will respond differently to the same situation suggesting it is not merely the event, but how the teacher appraises it that determines whether or not they experience stress. Indeed, the role of appraisal as a mediating factor in the stress process indicates that the CBT methods discussed above could be effectively applied to enhance teachers’

cognitive appraisals of situations. Kryiacou (2001) and Jarvis (2002) separately advocated for future research to be directed towards assessing the effectiveness of intervention strategies aimed at reducing teacher stress.

### **1.5. Statement of the Problem**

In 2000, Seligman & Csikzentmihalyi highlighted the need for a significant increase in research into human strengths and virtues. Practitioners were urged to recognise that research was required to focus on amplifying strengths as well as repairing weaknesses. A review of Positive Psychology progress by Seligman et al. (2005) stated how, in the five years that followed its emergence, psychologists drew on methods effectively used to advance the science of mental disorders to study mental health and well-being, and that enhancing strengths is as important in the fight against mental illness as combating weaknesses (Seligman et al., 2005). This suggests that despite an initial drive to focus on enhancing the good, positive psychology has continued to borrow structure and practices born out of a negative focus. Seligman et al (2005) stipulated that positive psychology research findings are intended to supplement what is known about human suffering, weakness and disorder. Again this focus on fixing what is broken is exactly what positive psychologists claimed was the limited focus within general psychology practice. Whilst theorists still advocate the importance of research into building on positive attributes, the majority of work that has focused on enhancing optimism has been conducted on sample populations who are identified as either being at risk of depression (Seligman et al., 2007; Buchanan et al., 1999) or showing elevated levels of mental distress

(Gardner et al., 2005). There is still a lack of evidence identifying what positive repercussions simply enhancing positive attributes will have. For example, the evidence that enhancing optimism will have positive connotations for those at risk of depression is well documented, but it is not known if it will also have a positive effect on someone who is not at risk of developing depression, or suffering from mental illness. Exploratory work by the author has suggested that optimistic explanatory style has been linked to lower levels of perceived stress in student-teachers (Bryant, 2005, unpublished MSc Thesis). As such, the CBT skills employed within the optimism intervention studies, conducted within populations at risk of developing depression, could be applied to a high stress occupational setting, such as teaching, in order to reduce levels of perceived stress.

Two separate critical reviews of current teacher stress research have identified a deficit in the volume of research into the design and effectiveness of interventions designed to combat teachers stress (Jarvis, 2002; Kyriacou, 2001). Whilst factors that contribute to teacher stress have been consistently identified, little or no research has been conducted into the effects of reducing or mediating them. Despite understanding that cognitive factors mediate the appraisal and impact of stressors, there are no outcome studies for CBT-based interventions conducted within an educational context. CBT is an intervention technique with a recognised and valued impact for enhancing function (NICE Guidelines, 2008) which is worthy of implementation and investigation within the teaching domain, especially in relation to reducing teacher stress (Jarvis, 2002).

## **1.6. The Importance of Field Based Research**

Early behaviourist and cognitive approaches employed predominantly laboratory based experiments to explore their relative theories. Such studies are created to allow for careful manipulation of the independent variable whilst limiting the presence of extraneous variables in order to produce changes in a dependent variable that can be reliably linked to the independent variable. However, as psychological research has progressed it can be seen that research has had to include studies conducted in naturalistic environments in order to fully understand the various factors at play in the complex process of cognitions, behaviours and emotions. Teachers face ever-changing situations and adversities which lead to stressful experiences. Such meaningful and real-life situations cannot be simulated in an experimental setting and, as such, in order to fully understand the impact of individual differences on mediating cognitive processes, it is imperative to study teachers in a naturalistic environment. Furthermore, an important objective of conducting an intervention-based study is to consider how effective and applicable that intervention is in a real life context. Within psychology, researchers are attempting to instigate change through the use of an intervention. In order to do this effectively, it can be argued that for change to be meaningful, it should occur within the individual's natural environment. Therefore, to fully explore whether an intervention is effective in, and applicable to, a particular occupation it must be researched within that occupation's naturalistic setting and as such, the current thesis will aim to address the issue of ecological validity by researching stress in teaching within a naturalistic teaching environment.

### **1.7. Aims of the Study**

The purpose of this thesis was, therefore, to develop and implement a positive psychology based, cognitive-behavioural intervention to enhance appraisal responses of student teachers to work place stressors. In order to assess whether this would enhance learned optimism and reduce the amount of stress experienced by student-teachers during in-school teaching placements the current thesis addresses two main issues. The initial issue was to determine whether learned optimism reduces stress and the second was whether any causal effects can be more convincingly attributed to the intervention by exploring whether a dose-response (Hill, 1965) was associated with this type of training.

Such CBT-based learned optimism interventions have not been implemented within the teaching domain before and as such this original research will make a unique contribution to academic knowledge in educational and positive psychology arenas. The intervention, if successful, also has the potential to make practical contributions to the ways in which teacher-stress is reduced. The incorporation of effective interventions into future PGDE courses, potentially as part of professional training, may lead to reduced levels of student-teacher stress and higher retention levels. Ultimately, there is also potential for implementing such workshops as part of CPD programmes, for qualified teachers, in an attempt to counteract the negative effects stress appears to be having on teaching as a profession.

## Chapter 2

### Literature Review

#### 2.1. Optimism

Optimism can be defined as a tendency to expect the best possible outcome or dwell on the most hopeful aspects of a situation. Within psychological research, optimism has been defined in two different ways: explanatory style and dispositional optimism. Firstly, the terms optimism and pessimism have been applied to distinguish between the ways in which people routinely think about the causes of events in their lives, termed *explanatory style* (Ambramson, Seligman & Teasdale, 1978; Seligman 2006). Concurrently, the term optimism has been used to refer to hopeful expectations towards or about a given situation (Scheier & Carver, 1985). This is known as *dispositional optimism*. Whilst some researchers adopt one or the other of these perspectives in isolation, there is a strong connection between them. The singular definitions and likely relationship are explored in the following sections.

##### *2.1.1. Explanatory Style*

Explanatory style refers to the ways in which people routinely think about the causes of events in their lives. The terms optimism and pessimism have been applied to distinguish between different explanatory styles (Revich & Gillham, 2003). Seligman (2006) suggested explanatory style stems directly from an individual's view of their place in the world and is a habit of thought, learned

throughout childhood and adolescence. “It is the hallmark of whether you are an optimist or a pessimist” (Seligman, 2006, Pg 44).

The construct of explanatory style stems from the Reformulated Learned Helplessness Theory (RLHT: Abramson et al., 1978) which proposes that the attributions an individual makes can be measured across three crucial dimensions that have been labelled as the ‘three Ps’ (Seligman, 2006). These dimensions are portrayed in Table 1.

**Table 2.1:** *The three dimensions of explanatory style.*

<b>Dimension</b>	<b>Explanation</b>	<b>Example</b>
Permanence ( <i>Stable to unstable</i> )	Whether the attribution is made to a cause which is always going to be present (stable) or a cause which is present just that time (unstable).	People who give up easily believe the causes of bad events to be permanent: e.g. “pupils never listen”, as opposed to “they’re just distracted today”.
Personalisation ( <i>Internal to external</i> )	Whether the cause of the event is internal, attributed to the individual themselves, or external, attributed to causes outside the individual.	Individuals can blame themselves for events or other people or circumstances: e.g. “I’m a boring teacher” as opposed to “It’s nearly lunchtime and the pupil’s are hungry”.
Pervasiveness ( <i>Global or specific</i> )	Whether the cause of the event is believed to influence just the situation in question (specific) or whether it influences all other parts of the individual’s life (global).	When something bad happens at work, some people can put it in a box and forget about it when they go home, whilst others will let it affect their mood and behaviour for the rest of the day.

In accordance with these three dimensions, individuals with pessimistic explanatory styles believe the causes of bad events to be stable, global and internal. Explaining events this way results in a belief that bad events are likely to recur, that other bad events are also likely to happen, and that the reason for this is due to the individual and is relatively unchangeable. In contrast, optimists attribute bad events to unstable, specific and external factors, believing the cause of that adverse event is only related to the current situation, will not impact on anything else and is not due to themselves. Seligman (2006) proposes that the reverse is true when explaining good events: pessimists attribute good events to unstable, specific, external factors whilst optimists believe good things are likely to be the same in the future (stable), will have a positive impact on everything in their lives (global) and are the result of their own actions (internal). Explanatory style theorists believe an individual's explanatory style will influence their future behaviours in terms of confidence to approach situations, persistence to keep trying, and increased effort to improve performance levels. Abramson et al. (1978) stipulate that the routine explanatory style of an individual influences their general outlook and behaviour, and thus influences their expectations regarding the future.

Explanatory style has become one of the various personality constructs explored by researchers within the 'positive psychology' paradigm. This interest in explanatory style, and in particular the concept that it is an adaptive aspect of personality, has led to a plethora of empirical literature exploring the relationship between explanatory style and mental and physical health. Evidence has been found to support a link between optimistic explanatory style and better physical



health; for example individuals with an optimistic explanatory style are more likely to be protected against the risk of coronary heart disease (Kubzansky, Sparrow, Vokonas & Kawachi, 2001), suffer fewer illness and display fewer clinician visits (Buchanan, Gardenswartz & Seligman, 1999; Lin & Peterson, 1990; Seligman, Schulman & Tryon, 2007), and better health over their lifespan (Peterson, Seligman & Vaillant, 1988). Consistent with the positive impact of optimistic explanatory style, pessimistic explanatory styles have been associated with higher levels of physical illness (Jackson, Sellers & Peterson 2002), and are also widely associated with a high incidence of depressive symptoms and depressive episodes (Peterson & Seligman, 1984; Ambramson, Alloy, Hankin, Clements, Zhu, Hogan, et al. 2000). Without intervention, explanatory style is considered relatively stable (Burns & Seligman, 1989). However, research has shown that it can be modified through cognitive-behavioural training (Buchanan et al., 1999). Furthermore, Seligman et al. (2007) report that making explanatory style more optimistic seems to be one of the mediators by which a cognitive-behavioural intervention prevents and relieves depression and anxiety. This concept that an individual can learn to change their explanatory style, and therefore become more 'optimistic', has led to the construct being commonly referred to as 'Learned Optimism' (Seligman, 2006). Empirical studies demonstrating the impact of learned optimism interventions are discussed in more detail below (see section 2.5.2.).

### 2.1.2. *The Attribution Theory*

The RTLH proposed by Ambramson et al. (1978) and the subsequent concept of explanatory style bears a similar structure to the Attribution Theory (Heider, 1958; Weiner, 1972, 1985). Attribution Theory proposes that the way in which individuals perceive or judge why an event occurs, and the allocation of responsibility, guides subsequent behaviour (Weiner, 1972). This theory has predominantly been studied within the domains of achievement, motivation and emotion (Weiner, 1985). In 1985, Weiner proposed that the perceived causes of events have three common properties: locus, stability and controllability. These dimensions of causality are presented and explained in Table 2.2.

**Table 2.2:** *The three dimensions of the causal structure of the Attribution Theory as proposed by Weiner (1985).*

Dimension	Explanation
Locus	Refers to whether the cause of an event is internal (because of the individual) or external (due to the environment).
Stability	Refers to whether the causal factor fluctuates or is it always the same.
Controllability	This dimension was created in order to account for volitional controllability. It refers to whether the cause of an event is perceived as being controllable or not.

A comparison of the three dimensions of explanatory style (Table 1: Ambramson et al., 1978; Seligman, 2006) with the three dimensions of causal structure proposed by the Attribution Theory (Table 2.2: Weiner 1985) highlights the similarities between the two theoretical models. Both pertain that causes can be attributed to internal/external factors and stable/unstable factors. Where the two

models differ is that the attribution theory distinguishes between the individual themselves (locus) and their ability to exert control (controllability). The RLHT would appear to merge these two factors together under the internal/external dimension and add the third causal dimension of pervasiveness (whether the cause is global or specific). Weiner (1985) acknowledges that the dimension of 'globality' would appear to have high face validity but requires further research.

Seligman (2006) stipulates that in developing the RLHT, Abramson et al (1978) drew upon the Attribution Theory which was emerging around the same time, but that the theory of explanatory style differs from that of the Attribution Theory in three ways. Firstly, explanatory style theorists are interested in habitual explanations as opposed to single attributions regarding a specific event. Secondly, and as previously mentioned, Abramson et al. (1978) included the dimension of pervasiveness and, finally, whilst the Attribution Theory focused on achievement, the RLHT was interested in mental illness and therapy, stemming from earlier work in helplessness and depression.

Despite subtle differences, the underlying premises of RLHT (Abramson et al., 1978) and Attribution Theory (Weiner, 1985) are remarkably similar. Similarly to explanatory style, Weiner (1985) stipulates that attribution of causes along these three dimensions will influence an individual's subsequent emotions and expectancies regarding future events. In turn, an individual's emotions and expectancies guide their behaviour. Consequently the Attribution Theory also presents a process by which explanations of events have been shown to impact on an individual's affectivity and behaviour, and has applied this to help explain

theories of motivation, achievement and learning. Furthermore, the Attribution Theory also pertains that the way in which events are explained can be altered by the individual in order to increase individual success (Weiner, 1985). In this way, the Attribution Theory also provides support for the concept that how people attribute causes to events in their lives will impact upon their future expectancies, or dispositional optimism (Scheier & Carver, 1985).

### *2.1.3. Dispositional Optimism*

The second perspective of optimism widely studied within the psychological literature is based on the concept that optimism is a trait-like disposition. This approach is presented in Scheier & Carver's (1985) construct of dispositional optimism and reflects the more traditional expectancy-based definition of optimism found in dictionaries. Scheier & Carver suggest people differ widely in how they approach the world. Optimists tend to have a favourable outlook, expect things to go their way and generally believe that good things will happen to them. Conversely, pessimists expect things not to go their way and anticipate bad outcomes to events in their lives. Furthermore, Scheier & Carver (1985) propose these individual differences are relatively stable across time and context and describe optimism as a trait or disposition. In turn, they suggest that optimism, construed as a stable personality characteristic, has important implications for the manner in which people regulate their actions.

This concept that optimism has important behavioural consequences is grounded largely within a Control Theory model of self-regulation (Carver & Scheier,

1982). This model is based on the belief that goal directed behaviour is guided by a process of closed-loop negative feedback systems, which become more fully engaged when a goal is salient and the individual focuses attention inwards on themselves. Ultimately this attention shift causes a change in behaviour aimed at minimising the perceived discrepancy between the current behaviour, and situation, and the desired goal. Carver & Scheier (1982) state that obstacles will be met whilst assessing how to, or attempting to, minimise this discrepancy and behaviour will momentarily be interrupted while an assessment process of the situation occurs. This process will ultimately yield an outcome expectancy regarding the situation, which directly influences subsequent behaviour. Carver & Scheier (1982) stipulate that it is at this point in the process that an individual's level of dispositional optimism impacts upon behaviour. An optimistic person is more likely to view the outcome expectancy as favourable resulting in renewed effort and persistence. Alternatively, an individual with a pessimistic disposition will regard the outcome expectancy as unfavourable. In which case, reduced effort will ensue, or in extreme cases, complete disengagement from further attempts.

Studies have been conducted to investigate the benefits of dispositional optimism and the drawbacks of pessimism in relation to real-world challenges including business, surgical operations and academic studies. As with explanatory style, dispositional optimism has been linked to a variety of physical and psychological health benefits. In their initial studies in the area, Scheier & Carver (1985) discovered that college students with an optimistic outlook on life reported fewer physical illness symptoms during stressful periods such as the final weeks of the

academic year. Likewise, Karademas (2006) identified optimism as a predictor of general well-being in 201 insurance company employees. Patients with an optimistic disposition reported lower levels of hostility and depression immediately prior to coronary heart surgery, and greater feelings of relief, happiness and satisfaction with medical care over the following days post surgery (Scheier, Matthews, Owens, Magovern, Lefebvre, Abbott, et al., 1989). Optimism was also a significant predictor of subjective well-being in these patients five years after the heart surgery. Recently, David, Montgomery & Bovbjerg (2006) provided further support for the psychological benefits of optimism, showing that optimists experienced less distress prior to life adversities such as surgery, whilst Ruthig, Haynes, Stupnisky & Perry (2009) concluded that optimism predicts less end-of-year stress, as measured by the Perceived Stress Scale (PSS: Cohen, Kamarck & Mermelstein, 1983) and depression in a sample of 288 college students.

#### *2.1.4. Potential Relationship Between Explanatory Style and Dispositional Optimism*

Despite both perspectives utilising the term optimism, explanatory style refers to a flexible personality characteristic which can be altered, and pertains to specific events in the past, whilst dispositional optimism is regarded as a generalized disposition which remains stable across one's lifetime and determines individuals' expectations regarding future events. However, despite this obvious contextual difference surrounding the two constructs, the theory behind each lends itself to the potential existence of a relationship between the two.

Abramson et al. (1978) propose that how individuals routinely explain events will impact upon their future expectations. A prolonged, habitual pattern of thought is likely to crystallise and become much more akin to a disposition. Likewise, it would seem plausible that an individual with a positive outlook on life will be more likely to attribute the causes of specific situations in a more optimistic way. This potential link between dispositional optimism and explanatory style is supported by Busseri, Choma & Sadava (2009) who reported that, in addition to anticipating more satisfying futures than pessimists, individuals with an optimistic disposition are also more likely to have rosier evaluations of their past and present life events and outcomes. As a result of on-going life experiences this temporal process of positive expectations and explanations, becomes 'cyclical'.

This inter-relationship between the optimism constructs would appear to be supported by the fact that, as discussed above, numerous studies have linked both facets of optimism to similar physical and mental health benefits. However, despite the two constructs having been studied extensively as individual constructs, there is surprisingly little research exploring the relationship between the two. The few studies that have explored this relationship have reported mixed results. In 2001, Tomakowsky Lumley, Markowitz & Frank examined the associations between the two types of optimism with each other, and physical health symptoms and immune status, in 78 HIV-infected men. Results showed that, both dispositional optimism (as measured by the Life Orientation Test, LOT: Scheier & Carver, 1985) and explanatory style (as measured by the Expanded Attributional Style Questionnaire, EASQ: Peterson & Vallanova,

1988) were significantly positively correlated with better health. The two types of optimism were also significantly correlated to each other, but this relationship was only minimal ( $r = .25$ ). Tomakowsky et al. (2001) proposed that the two optimism models tap into two different aspects of a global optimism construct.

This notion was supported by the results of Boman, Smith & Curtis (2003) who showed that whilst a pessimistic explanatory style and pessimistic disposition both, indirectly, led to destructive school behaviour in 102 high school students, they did so through different mechanisms. In this study a pessimistic explanatory style (as measured by the Attributional Style Questionnaire, ASQ: Peterson et al., 1982) was linked to higher levels of anger intensity, which in turn negatively affected behaviour. Pessimistic disposition (as measured by the Extended Life Orientation Test, ELOT: Chang et al., 1997) was associated with increased hostility towards school resulting in destructive behaviour.

More recently Hirsch & Connor (2006) tested the hypothesis that higher levels of optimism reduce the association between hopelessness and suicide ideation in 284 college students. Results highlighted that this was only true for explanatory style and not for dispositional optimism. Whilst they propose these results could reflect the potentially different etiologies of the two optimism constructs, trait versus learned, they also acknowledge that the absence of significant findings regarding dispositional optimism may be due to a lack of statistical power and that further research is required. A limitation of both the Boman et al. (2003) and Hirsch et al. (2006) studies is that, although they examined both explanatory style and dispositional optimism as mediators of either anger or depression, they



did not explore the relationship between the two constructs. Tomakowsky (2001) however, presents a study which actually assessed the relationship between the two constructs. Consequently there is a gap in the literature, and as concluded by Tomakowsky et al. (2001), further theoretical clarification and construct validation is required in order to fully explore the relationship between explanatory style and dispositional optimism. The current thesis will aim to explore the extent of the relationship between these two constructs in relation to perceived stress and the impact on both from a cognitive-behavioural intervention.

## **2.2. Stress and Coping**

### *2.2.1. Transactional Model of Stress*

It is now widely accepted that stress is not a simple linear process based on a stimulus-response basis. Instead, stress is regarded as a complex multi-dimensional relationship in which it is important to consider the characteristics of the person alongside the nature of the environment (Lazarus & Folkman, 1984). Lazarus & Folkman (1984) define stress as “a relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being” (p 21). In previous literature surrounding research into stress in academia there has been a lack of clarity regarding what exactly the term stress is referring to. Putwain (2007) identified this as an obstacle for designing and conducting future research in the area, highlighting a divide in the literature between some studies referring to

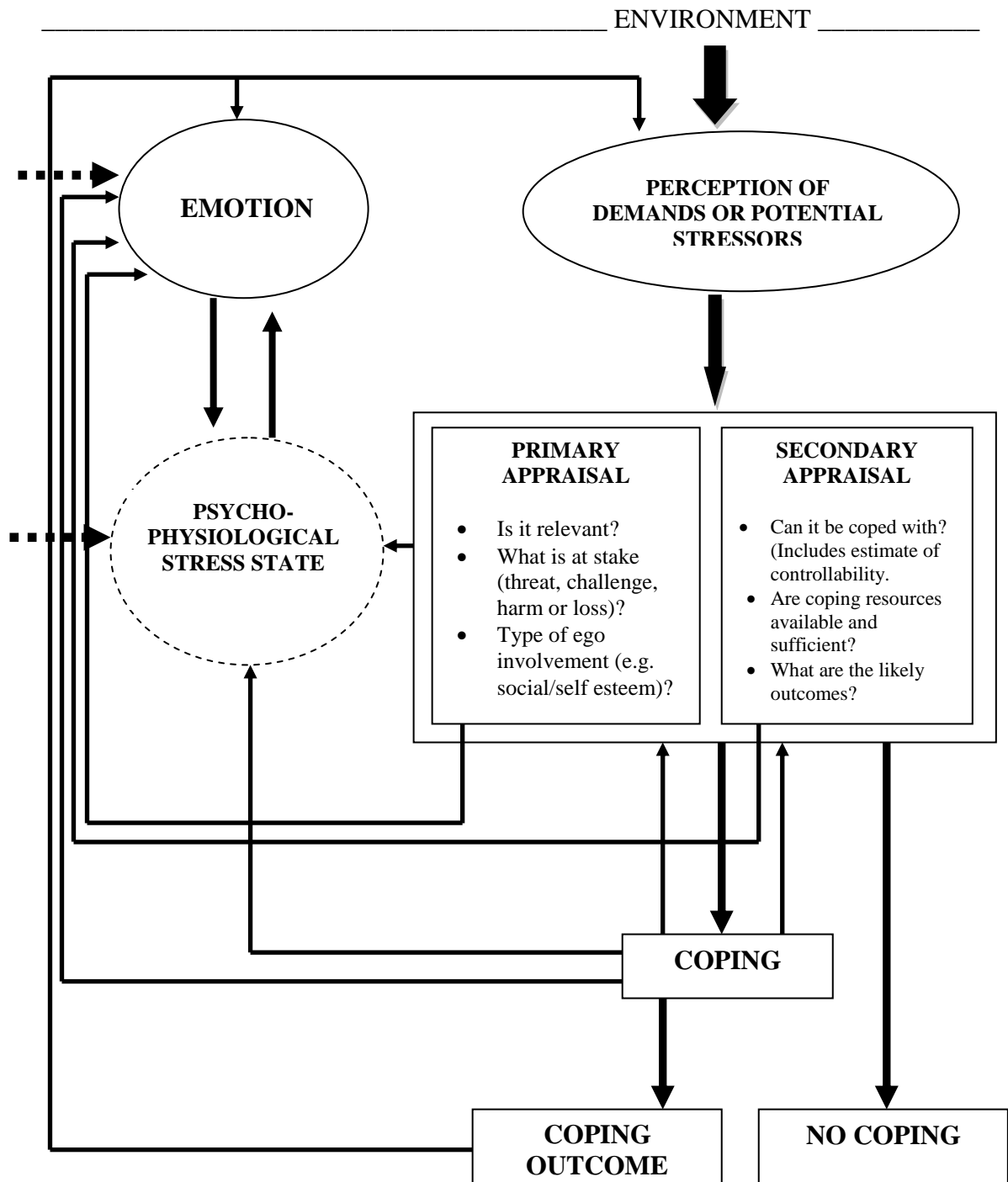
stress as a stimulus and, others, a response. Given the fact that the transactional model of stress and coping are widely accepted within psychology, the Lazarus & Folkman (1984) definition of stress will be used to guide this research.

At the core of the Transactional Model of Stress (Lazarus & Folkman, 1984) is the concept of cognitive appraisal: a particular person-environment relationship is only stressful depending on whether the individual appraises it to be. Lazarus and Folkman (1984) highlight two stages of appraisal: primary appraisal and secondary appraisal, which despite their labels, are thought to occur almost simultaneously. Through the process of primary appraisal a situation is determined as being relevant or irrelevant, benign-positive or presenting possible harm, threat or loss. If a situation is appraised as relevant to the individual and presenting possible harm, threat or loss it is more likely that the event will be viewed as a stressor. The secondary appraisal process begins to assess what might and can be done about the situation, including an assessment of the relevant coping resources and possible outcomes. If an individual determines that the potential harm/threat/loss outweighs their available coping resources they will experience stress.

### *2.2.2. Stress, Coping and Emotion*

The outcome of the appraisal process directly influences whether the individual makes an attempt to cope with the situation. Coping is defined as the “constantly changing cognitive and behavioural effort to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the

person” (Lazarus & Folkman, 1984, p. 141) that occurs following the appraisal process. Lazarus (1999) suggests that the appraisal process will also generate an emotion within the individual which, again, occurs relatively instantaneously. Despite the two distinct fields of research that have developed around stress and emotion, Lazarus (1999) amplifies the point that stress as a topic is interdependent with the field of emotion – “when there is stress there are also emotions” (p.35). Furthermore, coping is an integral part of emotional arousal and as such the three concepts of stress, coping and emotion form a conceptual unit. The relationship between them is summarised in the Model of Appraisal, Coping and Emotion in Sport (Richards, 2004), depicted diagrammatically in Figure 2.1.



*Figure 2.1: Model of Appraisal, Coping and Emotion (Richards, 2004).*

The demands of the environment are appraised by the individual and compared against their coping resources. This process can evoke a no coping option, if the

individual perceives no response is necessary, or lead to a psycho-physiological stress state. Each stage in this process leads to the production of an emotion which will, in turn, influence that individual's perceptions of the demands both in present and future situations. This suggests that an individual's response to a situation will influence their perception of future similar situations. For example, if a certain situation creates a feeling of discomfort, this same event in the future will automatically be linked to a negative feeling. This cyclic process of situation, appraisal, coping and emotion is reflected in cognitive therapy theory and practice, in which an individual's emotional response to a situation is considered to be generated by the way in which that individual attributes meaning to the events in their life, or their 'subjective construction of reality' (Neenan & Dryden, 2004).

The Cognitive Therapy (CT) model (Beck, 1995) proposes that an individual's emotional reactions are determined by their perception of events. Individuals are seen as actively involved in constructing their reality; it is not solely the situation that determines what a person feels, but rather the way in which the person construes a situation. Specifically the model stipulates that the emotional response is mediated by the perception of the situation, which is in turn mediated by the associated cognitive processes. This may seem an overly linear process, whereby a thought or belief about an event leads to a feeling/physiological response which then produces a behaviour. However, the CT model stipulates that each one of these elements is capable of influencing the others in an interactive cycle (Neenan & Dryden, 2004), thus reflecting the transactional processes reflected in Figure 2.1.

### **2.3. Optimism, Stress and Coping**

Individual differences are an important consideration when attempting to understand the issues surrounding stress. Cox & Ferguson (1991) state “the question of individual differences in relation to the experience and effects of stress, and in relation to coping, is virtually a defining characteristic of the psychological approaches [to stress]” (p 7). Whilst some situations might be considered generally stressful it is clear that not all individuals share the same experience or intensity of stress when placed in such situations. A key feature of Lazarus & Folkman’s (1984) model of stress is the emphasis on the appraisal conducted by the individual. This provides an explanation as to why different individuals respond to the same situation in different ways, and subsequently why two individuals, who differ in explanatory style, may perceive different levels of stress from the same situation (Richards, 2004).

Pessimistic explanatory style has been indirectly associated with increased stress levels. In a longitudinal study of 189 college students, Jackson et al (2002) found that a pessimistic explanatory style interacted with stress to predict subsequent physical illness, even when baseline illness was controlled for. Similarly to Ruthig et al. (2009), Jackson et al. also employed the Perceived Stress Scale (PSS: Cohen et al., 1983) in order to measure student stress. Furthermore, Jackson et al. distributed repeated copies of the PSS in a booklet which participants had to complete weekly. Jackson et al. (2002) highlights that these findings provide support for Abramson et al.’s (1978) diathesis-stress model which predicts that stress coupled with a pessimistic explanatory style

leads to negative outcomes. Furthermore, Hershberger, Zimmerman, Markert, Kirkham & Bosworth (2000) conducted a study to explore the relationship between pessimistic explanatory style and performance in 45 medical students who were residents on internal and family medicine programmes. All participants completed the Attributional Style Questionnaire (ASQ: Peterson et al., 1982) measurement tool for explanatory style and a Brief Symptom Inventory of stress and psychiatric symptoms. Results showed that residents with pessimistic explanatory styles experienced more job-related emotional distress. However, pessimistic explanatory style and job-related emotional distress was not linked to performance (as measured by scores of the semester in-training examination). Hershberger et al. (2000) suggest that the lack of relationship between pessimistic explanatory style and performance may be linked to the fact that their participant sample were skewed, portraying more of an optimistic explanatory style. Because of the high-achieving nature of medical residents, Hershberger et al. (2000) speculate that “having an optimistic explanatory style may contribute to success in medical education and may allow residents to cope with negative patient outcomes in the clinical setting without adversely affecting performance” (p677).

Optimistic explanatory style has been linked to better performance in a simple sports task following negative feedback, whilst individuals with a pessimistic explanatory style reported experiencing more state anxiety following negative feedback (Martin-Krumm, Sarrazin, Peterson, & Famose, 2003). Martin-Krumm et al. (2003) administered the Sport Explanatory Style Questionnaire (Martin-Krumm et al., 2001) to 278 school children aged between 14 to 16 years old. Of

these, participants who scored in the upper tenth percentile were selected to form an optimistic explanatory style group ( $n = 12$ ). Participants who scored in the bottom tenth percentile were selected to form a pessimistic explanatory style group ( $n = 20$ ) and lastly those close to the median were selected to form a neutral explanatory style group ( $n = 20$ ). All participants completed a basketball dribbling task and were given false feedback indicating they had failed. Before their second attempt at the trial, participants were asked to rate their perceptions of success/failure and also their perceived success expectation for the second trial. Results showed that participants with an optimistic explanatory style performed better in the face of adversity, whereas those with a pessimistic explanatory style did not improve, had lower success expectations and portrayed greater stress reactivity (as measured by heart rate monitors).

Martin-Krumm et al. (2003) propose that these results are in accordance with the view that the effect of explanatory style on performance is mediated by expectancies and state anxiety. This study provides further support for the potential relationship between explanatory style and dispositional optimism and also for the link between pessimistic explanatory style and stress. However, the main limitation of the Martin-Krumm (2003) study is that participants were asked to take part in an activity which had no meaning, or personal importance, to them. As such, it is hard to fully conclude whether the participants were exhibiting signs of stress due to the decreased performance. In order to gain a full and objective appraisal of the relationship between explanatory style, stress and performance, it is necessary to explore it in a naturalistic environment where performance expectations and feedback are of importance to the participant.



Seligman & Schulman (1986) explored the impact of explanatory style on performance in a naturalistic work setting when they tested the hypothesis that pessimistic explanatory style leads to quitting in the face of adversity. Results showed that explanatory style (as measured by the ASQ) correlated with, and predicted, the performance of 94 life insurance sales agents. Participants who scored in the top half of the ASQ, portraying an optimistic explanatory style, remained in their jobs twice as long as those with a pessimistic explanatory style. Individuals with an optimistic explanatory style also sold 37% more insurance in their first two years of employment.

The majority of research regarding explanatory styles has focused on pessimistic aspects, especially its relationship with depression. In this respect, the impact of a person experiencing stress has been studied as part of the overall path to depression; depression is associated with high levels of perceived stress and related to pessimistic explanatory styles. In 2006, following a gap in the literature relating to explanatory styles and stress perception, Bryant (unpublished MSc thesis) conducted a five week study of student teachers (n = 19) who were completing a five-week school placement as part of a one year, subject specific teacher educator programme. The study aimed to assess the relationship between optimistic explanatory styles and stress in student physical education (PE) teachers. Chronic stress was assessed via self-report measures and salivary cortisol levels over the final five-week practical placement of professional training. Results showed that optimistic explanatory styles were associated with lower levels of perceived stress in student PE teachers.

Dispositional optimism, the view that people are either optimistic or pessimistic in their expectations of life, has also been studied in relation to stress. Results from these studies have echoed those studies conducted within the explanatory style perspective of stress. Individuals with an optimistic disposition have been shown to experience lower levels of stress (Ruthig et al., 2009; Scheier & Carver 1992). Tuten & Neidermeyer (2004) assessed the effect of optimism on stress in 122 call centre employees and found that an optimistic disposition led to lower levels of perceived stress and work/non-work conflict. Further support came from Lai (2009) who investigated the mediating effect of optimism on the link between daily life hassles and mental health in 345 Chinese high school students. Lai concluded that dispositional optimism had a significant stress-buffering effect. Specifically optimistic individuals fared better than pessimistic individuals when the incidence of daily hassles increased. Following a review of research into the effects of optimism on psychological and physiological well being, Scheier & Carver (1992) concluded that optimists, in comparison to pessimists, manage difficult and stressful life events with less adverse impact on their well-being. Furthermore, Scheier & Carver propose that these results were partly due to the varying manners in which optimists and pessimists cope with stress.

Individuals will have a preferred set of coping strategies that remain relatively fixed across time and circumstance (Carver, Scheier & Weintraub, 1989). Several studies have presented evidence that optimism is positively correlated to active, adaptive coping behaviours including problem-focused coping and

positive reinterpretation whilst pessimism is associated with the use of denial and distancing oneself from the problem (Scheier, Weintraub & Carver, 1986; Carver et al., 1989). David et al. (2006) investigated the inter-relationships among optimism, pessimism and coping in predicting stress levels among 60 patients scheduled for breast cancer surgery. Consistent with already reviewed literature they found that optimistic people experienced less stress on the day of surgery than pessimists. Coping was also shown to impact on levels of distress but, interestingly, this was mediated by levels of optimism and pessimism. David et al. (2006) concluded that these findings are accommodated by the appraisal theory (Lazarus & Folkman, 1984). Optimism could be viewed as an influence on the secondary appraisal process (Richards, 2004), and therefore mediate an individual's appraisal of the sufficiency of their coping resources to deal with the respective situation, which will in turn moderate their perceived stress levels.

Further evidence that optimism impacts on stress and coping through the appraisal process comes from Chang (1998) who studied the impact of dispositional optimism and coping on adjustment in 726 college students through considering the role of the appraisal process. Chang developed a six-item measure of exam-related appraisals, employing a 10-point Likert-scale rating system on which participants were asked to rate how true the statement was of them. Students' appraisal processes accounted for a significant amount of variance in coping activity, which in turn accounted for variance in psychological and physical adjustment. At the core of this was a significant difference between optimists and pessimists in their secondary appraisal process. Whilst both personality types would appraise a situation as meaningful, only the optimists

would begin to consider their coping strategies. Chang (1998) proposed that this difference in appraisal led to pessimists employing more disengagement-based coping strategies (such as wishful thinking) than the optimistic students.

#### **2.4. Optimism and the Appraisal Process**

Individual differences have been categorised into two main areas when effectively discussing their relationship with the stress process either as mediators within the stress appraisal process, or moderators of the stress-outcome relationship. This distinction can be mapped directly onto the transactional model of stress outlined above (Cox & Ferguson, 1991). Kasl and Rapp (1991) reason that subjective evaluations of environmental conditions can be primarily a function of a stable predisposition, such as negative/positive affectivity or dispositional optimism. These personality characteristics, or traits, will automatically affect how an individual perceives a situation. For example a trait-anxious person will be more likely to interpret neutral stimuli negatively (Eysenck, 1997). Similarly a pessimistic individual is more likely to expect the worse in any situation (Scheier & Carver, 1985). In this way it can be seen that the primary appraisal process is susceptible to mediation by individual differences.

Likewise, personality characteristics are likely to influence an individual's assessment of their coping resources/abilities, the available social support and perceived control in relation to a situation that takes place, and likely outcome, during the secondary appraisal process. Through these mechanisms individual

differences mediate the stress-appraisal process. Cox & Ferguson (1991) describe a mediator variable as being responsible for the transmission of an effect but without altering the nature of that effect. A moderator variable, however, is one whose presence alters the direction and strength of a relationship between two variables. So to put this into the context of individual difference, stress and coping: the appraisal of a particular person-environment relationship is mediated by individual differences (such as optimism) which results in an attempt at coping that varies from one individual to another. This variation in coping has a moderating affect on the stress-outcome relationship.

It is suggested that optimism has both a mediating and moderating effect on the stress-appraisal process. This would help to explain why different individuals perceive the same adverse situation with varying levels of stress, and also why optimists employ different coping mechanisms to pessimists. There are numerous ways in which optimism may impact on the cognitive appraisal process outlined by Lazarus & Folkman (1984) in their transactional model of stress. An individual's level of dispositional optimism (Scheier & Carver, 1985) will determine their predisposition to view situations in either a positive or negative light. This could be linked to the primary appraisal process, during which situations within the environment are appraised as presenting threat, loss, harm or challenge to the individual. An individual with a low level of dispositional optimism may perceive a higher level of potential threat, loss or harm from situations and therefore experience more stress stimulus than an individual with a higher level of optimism. The construct of explanatory style also has the potential to impact on the cognitive appraisal process during the

secondary appraisal process. An individual who attributes the causes of events in an optimistic way is more likely to believe they can cope effectively with that situation in the future, thus moderating the secondary appraisal process in which an individual assesses their resources and ability to cope with the situation at hand.

## **2.5. Cognitive Behavioural Therapy Based Optimism Interventions**

Explanatory style has been successfully altered through the implementation of cognitive-behavioural interventions resulting in an increased optimistic style, better physical health (Buchanan et al, 1999) reduced levels of work-related stress (Gardner, Rose, Mason, Tyler & Cushway, 2005) and decreased depressive and anxiety symptoms (Seligman et al., 2007).

### *2.5.1. Cognitive Behavioural Therapy (CBT)*

The basis of training to enhance explanatory style can be found in cognitive behavioural therapy (CBT). CBT is a type of psychotherapy which teaches individuals to overcome self-defeating beliefs, including pessimism (Schulman, 1999). In the early 1960's American psychiatrist Aaron Beck developed the Cognitive Therapy model that was centred around the perspective that individuals are not passive recipients of their surrounding environments, but are actively involved in constructing their own realities (Clark, 1995). According to Beck's model, to fully understand an individual's emotional response to a particular event, it is important to discover the meaning (or thoughts) he or she

attaches to that event. As Neenan & Dryden (2004) point out, this does not imply that problems experienced by individuals are all in their heads, but that adverse situations can be greatly exacerbated by unhelpful thoughts and beliefs associated with that particular situation. This perspective, which is in accordance with Lazarus & Folkman's (1984) transactional model of stress, helps to emphasise the importance of individual differences, explaining how two individuals may respond to the same situations in different ways.

The cognitive therapy model is based on an information processing model which stipulates that a person's thinking becomes more rigid and distorted during psychological distress. At such times judgements will become over-generalised and absolute, and basic beliefs about the world become 'fixed' (Weisharr, 1996). In an undisturbed frame of mind, an individual is likely to check their appraisal of an event or situation in order to obtain clear and objective information. However, when an individual has elevated negative emotions they will usually introduce a processing bias to their thinking, making it rigid and over-generalised, distorting incoming information regarding the situation (Neenan & Dryden, 2004). These information processing errors, found during times of elevated negative emotions, are known as cognitive distortions. Common cognitive distortions often discussed during cognitive behavioural training (CBT) are shown below in Table 2.3. Using CBT to teach individuals how to identify and correct these cognitive distortions facilitates the return of flexible, reliable and evidence-based thinking (Neenan & Dryden, 2004).

**Table 2.3:** *Cognitive distortions commonly discussed in CBT*

<b>Cognitive Distortion</b>	<b>Explanation</b>
All or nothing thinking	Situations are viewed in absolute 'either/or' terms.
'Should' and 'must' statements	Unreasonable and unrealistic statements or beliefs which place high pressure on an individual.
Personalisation	Making everything about oneself.
Jumping to conclusions	Making rushed judgements often without all the facts.
Mind Reading	Discerning the thoughts of others without any accompanying evidence.
Discounting the positive	Choosing only to believe the negative is true.
Emotional reasoning	Assuming that feelings are facts.

CBT works on the premise that there are three levels of thinking: Negative Automatic Thoughts (NATs), underlying assumptions and rules, and core beliefs (Neenan & Dryden, 2004). NATs are situation specific and involuntarily 'pop' into an individual's mind when they are experiencing emotional distress. Underlying assumptions and rules are often unarticulated. Assumptions can usually be identified by their 'if... then...' construction whilst rules are usually expressed in 'must' and 'should' statements. Underlying assumptions and rules guide behaviour, set standards and provide the rules for that individual to follow. Core beliefs, also known as schemas, are the third and deepest level of thought, meaning they are the hardest to change. Negative core beliefs are over-generalised and unconditional, and once activated, biased processing of information confirms them and discounts any contradictory information. CBT



usually intervenes at the NATs level of thinking and then moves onto underlying assumptions and finally core beliefs. However, it is not always necessary for the therapy to progress to the deeper levels; some individuals are helped at the NATs level.

Schulman (1999) describes the generic CBT process in three steps. The first phase of CBT involves teaching an individual to *identify* self-defeating beliefs and cognitive distortions that they may not initially be aware of. Secondly, individuals are then taught to gather and assess *evidence* in order to evaluate the accuracy of their self-defeating thoughts. Finally, participants are taught to *replace* these maladaptive thoughts with more constructive and accurate beliefs. This process has been extensively researched and applied across a range of interventions. In 2006 there were over 325 published outcome studies on cognitive-behavioural interventions (Butler Chapman, Forman & Beck, 2006). Part of the interest in CBT is that it has been successfully adapted to effectively combat a wide range of disorders and problems including depression (Seligman et al., 2007), anxiety and phobias (Beck, Emery & Greenberg, 1985), obsessive-compulsive disorder (Salkovskis, 1999), insomnia (Harvey, Inglis & Espie, 2002), personality disorder (Sperry, 1999), bipolar disorder (Newman, Leahy, Beck, Reilly-Harrington & Gyulai, 2002) and posttraumatic-stress disorder (Ehlers & Clark, 2000), and has been extensively researched. The optimum delivery of CBT has also been investigated. Shaffer, Shaprio, Sank & Coghlan (1981) explored the relative efficacy of both individual and group CBT approaches in treating anxiety and depression. Results showed that group and individually delivered CBT were equally effective in reducing the symptoms of

depression and anxiety, and increasing assertiveness. More recently, Sharp, Power & Swanson (2004) investigated the relative effectiveness of a group CBT, individual CBT and a waiting list control group, in the treatment of panic disorder and agoraphobia. Results showed that, whilst the group and individual CBT cohorts showed significant improvement compared to the control group, they did not differ from each other. Results such as these have important consequences for the future application of cognitive-behavioural interventions.

#### *2.5.2. Cognitive Behavioural Training Programmes and Optimism*

Seligman (2006) and Schulman (1999) suggest that because optimistic explanatory style is a cognitive style, it can be altered. Cognitive behavioural techniques that explicitly focus on altering automatic thoughts and beliefs are ideally suited for this. The cognitive skills learned through CBT can be used to help individuals learn ways to overcome self-deprecating beliefs such as those associated with a pessimistic explanatory style (Schulman, 1999). Seligman (2006) outlines in his book, written for the self-help market, a programme for individuals to follow if they want to improve their explanatory style and become more optimistic. This suggests that the skills are simple enough that a change in explanatory style can be achieved through a form of bibliotherapy. There is also empirical evidence that such skills can be delivered via workshop based training sessions in order to improve general health and depression (Buchanan et al., 1999; Seligman et al., 2007).

The application of a CBT-based approach to change explanatory style was demonstrated by Buchanan et al. (1999) who conducted a study to explore the impact of a cognitive behavioural intervention on physical health in university students with low pessimistic explanatory style. The authors recruited 104 participants from a larger study, known as the 'APEX project' which was investigating the prevention of depression through group-based cognitive behavioural intervention, whilst also assessing potential mediators of depression such as explanatory style. Participants consisted of 231 undergraduates at the University of Pennsylvania who were identified as being at-risk of developing depression on the basis of their high pessimistic explanatory style (as measured by the Attributional Style Questionnaire: Peterson et al., 1982). Participants were randomly assigned to an experimental, workshop group or a no treatment control group. Participants in the workshop group received the CBT intervention which consisted of eight two-hour weekly workshops, delivered over eight weeks with homework between each session. Of these original participants, 104 completed Buchanan et al.'s (1999) Health Extension, in which they examined the effect of the CBT intervention on health using interviews and measures such as medical records, symptom checklists and number of visits to the medical centre.

Results showed that the control group reported more symptoms of physical illness and more visits to the medical centre. Hopelessness, associated with a high pessimistic explanatory style, was shown to mediate the onset of depression and in turn, depression was found to mediate well being. Buchanan et al. (1999) concluded that CBT-based depression prevention training reduced physical

symptoms and improved health. Their work supported that of Peterson et al. (1988) who showed that optimists report fewer physical illness symptoms than pessimists.

Buchanan et al.'s (1999) study fulfils the criteria for establishing the causal relationship between a psychological trait and physical health that were outlined by Peterson et al. (1988). These criteria include: (1) a longitudinal nature; (2) adopting an adequate time span; (3) using multiple measures of physical health. Whilst their study highlighted the positive impact a CBT intervention had on university students, there are a number of limitations in the study. Because their study was an extension of a larger study, Buchanan et al. (1999) did not gather baseline data regarding participants' general health. Furthermore there are questions unanswered in their study, particularly relating to the impact of the intervention on explanatory style. It is suggested that hopelessness mediated depression which mediated ill health. However, no direct measures of explanatory style were collected and, as such, it is not possible to state with certainty the potential relationship between changes in explanatory style, depression and ill health. It is acknowledged that this was not the primary purpose of the study, however it is suggested that further research is needed to identify whether the CBT intervention impacts directly upon explanatory style.

A further limitation of the Buchanan et al. (1999) study can be found in their follow-up design. The follow-up was conducted at the same time for all participants, in spite of the fact that they had joined the programme, and therefore received the CBT-based training at different times. This meant that

some participants were re-tested at points ranging from 6 to 30 months following the completion of the intervention. This was reflected in Buchanan et al.'s results; the greater the duration between the intervention and the beginning of the health assessments, the fewer doctor's visits reported. Buchanan et al. suggest this may be the results of poorer memory recall over longer periods of time.

Seligman et al. (2007) conducted a similar study which explored the use of cognitive behavioural workshop to prevent depression and anxiety in 240 undergraduate students who were entering their first year at the University of Pennsylvania. Similar to Buchanan et al. (1999), participants were selected on the basis that they showed mild to moderate symptoms of depression, assessed using the Beck Depression Inventory (BDI). The study consisted of two groups, a control and workshop group. The latter received eight, two-hour weekly meetings, with between session homework. One of the methodological designs incorporated by Seligman et al. (2007) was that of baseline measures of depressive symptoms, well being and explanatory style. This allowed both inter- and intra-group comparison pre and post intervention. Seligman et al. (2007) also incorporated a 6 month follow-up with a further 3 year follow up planned. This will identify any long lasting effects or decay in the effects of the CBT intervention. This level of understanding is necessary to consider if CBT interventions are to be implemented in organisations. However, Seligman et al.'s follow up study will take place whilst participants are still undergraduate students, and as such will not provide information about how effective the intervention is for preparing students for professional life after university. The results of Seligman et al.'s (2007) study suggest that the CBT intervention led to

a significant reduction in depressive symptoms compared to the control group. The workshop group also showed a significant increase in optimistic explanatory style (as measured by the ASQ: Peterson et al., 1982) following the intervention.

Seligman et al. (2007) concluded that the increased levels of optimistic explanatory style reported by the workshop group following the intervention, mediated the reduction in depressive and anxiety symptoms pre- to post-workshop. Seligman et al. (2007) present a well thought out, complete intervention based study which demonstrates how CBT can effectively enhance optimistic explanatory style and reduce symptoms of depression and anxiety in university students. However, the use of university undergraduate students is also a limitation of the Seligman et al. study due to the amount of undergraduate related research available. Specifically, Seligman et al.'s (2007) sample are of the same age, and recruited from the same university, as Buchanan et al.'s (1999) study, and as such does not provide any new data. It is suggested that, if university students are to be used in such studies, postgraduate students or student's undertaking a specific professional development course may provide more applicable data in that any positive intervention changes can be monitored and applied within the professional setting as part of a follow up study.

Furthermore, both Seligman et al. (2007) and Buchanan et al. (1999) used participants who were portraying depressive symptoms or were at risk of developing depression. As such, their results are limited to this specific population and the generalisability of the explanatory style construct to populations not at risk of depression is untested. While it may be common sense

to assume that such interventions will produce more of a significant result in individuals who start with a high pessimistic explanatory style, Schulman (1988) stated that “even the diehard optimist will occasionally have pessimistic beliefs when exposed to extreme or prolonged stress and can benefit from the use of these proven techniques” (Schulman, 1988, p4). It is therefore suggested that further research is required to explore the potential benefit of such interventions when delivered to a population not at risk of developing depression.

Such research will also expand understanding of the current positive psychology movement (see Chapter 1) by focusing on enhancing positive opposed to merely correcting weaknesses. Studies such as Buchanan et al. (1999) and Seligman et al. (2007) have focused on enhancing positive attributes as a response to negative stimuli, such as high depression scores. As such, they have continued to focus psychological research on treating deficits and disorders whereas the positive psychology movement emphasises the importance of studying strength and virtue (Seligman & Csikzentmihalyi, 2000). Furthermore, it is suggested that research into the impact of CBT-based optimism interventions on individuals who are not at risk of developing depression may provide knowledge which will benefit a broader population.

One avenue in which this manipulation of explanatory style may be examined is that of reducing perceived stress. Links between chronic stress and both depression and ill health are well documented. Both conditions can be the culmination of extreme or prolonged stress. However, despite this, neither Seligman et al. (2007) nor Buchanan et al. (1999) comment on the potential

mediating effect on experienced stress, that the interventions may have. However, the impact of a cognitive behavioural intervention on stress management has been explored by Gardner et al. (2005). In this study 138 British NHS employees, who were predominantly employed in the intellectual disability service, were divided into three groups: the cognitive group who received CBT training (including the identification of negative automatic thoughts, thought challenging, beliefs and attitudes, positive self talk, and distraction), the behavioural coping group who received traditional behavioural skills coping training (including time management, problem solving, goal planning and healthy lifestyles), and the control group who received no training. Both the cognitive and behavioural skills training were found to reduce physical illness symptoms at a three month follow up. Improvement was greater for those who participated in the cognitive condition. Gardner et al. (2005) concluded this based on the measures of general health (assessed by the General Health Questionnaire, Goldberg, 1978), coping behaviours (assessed by the Ways of Coping Questionnaire: Folkman & Lazarus, 1988) and appraisal (assessed by the Appraisal Questionnaire: Gardner et al., 2005) recorded post-intervention.

Gardner et al. (2005) present a good example of the impact of cognitive interventions within a professional domain. However, one critical limitation of this study is that Gardner et al. (2005) measured stress (using the Mental Health Professionals Stress Scale, MHPSS: Cushway, Tyler & Nolan, 1996) prior to, but did not re-test it following, the intervention. This means that although a conclusion can be drawn regarding physical health, appraisal and coping behaviours, all of which are linked to stress, there is no assessment in this study



of whether the intervention was actually successful in moderating the amount of work-related stress experienced by the participants. A further limitation of Gardner et al. (2005) is that they measured one of their key dependent variables with an appraisal questionnaire they designed for the study. Despite producing an adequate level of internal consistency (ranging from alpha coefficients of .64 to .75), there is no mention of prior testing, or the reliability or validity of the measure.

It would currently appear that there is a gap in the current literature surrounding CBT training programmes and stress itself. Preliminary work suggests that learned optimism (or explanatory style) can mediate the amount of stress student teachers experience whilst undergoing the practicum element of their post-graduate training (Bryant, Unpublished MSc Thesis, 2005). However further research is needed to explore the 'buffer' effect that, potentially, optimistic explanatory style may have on stress perception. The manipulation of optimistic explanatory style has been shown to be possible through the use of CBT, and this in turn may moderate individual experience of stress. This requires assessment through the use of a longitudinal research design, taking pre- and post-intervention measures, with a plan for follow-up assessment, and employing multiple measures of health as suggested by Peterson et al. (1988). Furthermore, the effectiveness of CBT-based optimism interventions in populations who are not at risk of developing depression requires investigation. If such interventions were effective in enhancing optimism and reducing stress, the application of CBT-based optimism training could be expanded to reduce the negative impacts of stressful occupations on individuals and their health.

## **2.6. Occupational Stress**

Occupational stress refers to stress experienced within the individual's workplace. Motowidlo, Packard & Manning (1986) developed a model of occupational stress that adopted Lazarus & Folkman's (1984) transactional model of stress. They proposed that specific events that occur at work cause subjective stress, through appraisal, which in turn prompts affective states such as anxiety, hostility and depression, and leads to decrements in job performance. These events are referred to as occupational stressors and encompass an "aspect of the work environment that cause strain, poor psychological health or well-being to the individual" (Beehr, Canali & Wallwey, 2001, p115).

### *2.6.1. Models of Occupational Stress*

In a review of the literature surrounding occupational stress and burnout in teaching Gugliemi & Tatrow (1998) report many of the models offered to explain work stress are consistent with the generally accepted transactional model of stress where stress is viewed as the result of an interaction between person and environment. Applied to occupational stress, Gugliemi & Tatrow (1998) propose the specific components of the transactional model are the work environment where the stressors are found, the person accounting for individual characteristics, and the resultant strain – physical, psychological and behavioural dysfunction. Numerous occupational stress and strain models have been put forward including the person-environment fit model (Caplan, Cobb, French, Harrison & Pinneau, 1975), the demand-control model (Karasek, 1979; Karasek

& Theorell, 1990), the effort-reward model (Siegrist 1996), the demands-supports-constraints model (Payne & Fletcher, 1983) and the effort-distress model (Frankenhauser, 1991). Each of these will be outlined briefly below.

The person-environment fit model (Caplan et al., 1975) views strain as the result of a mismatch between job requirements and demands, and the person's real or perceived ability to meet those demands. In contrast, the demand-control model does not view individual differences as important in mediating the stress-strain relationship. Instead, (Karasek, 1979; Karasek & Theorell, 1990) propose that job strain is determined by job demands (such as workload) and decision latitude (one's autonomy and control in their job) which are seen as characteristics of the job itself as opposed to the individual. The remaining three models are considered to be expansions of the demand-control model. The effort-reward model (Siegrist 1996) stipulates the individual will experience stress when the effort required and expended exceeds the occupational rewards attained. The demands-supports-constraints model (Payne & Fletcher, 1983) proposes the lack of decision latitude is only one of many possible constraining factors for the worker; lack of support and resources may also lead to stress. Support and constraint are viewed as opposite ends of the same continuum within this model, meaning that constraint appears to be contextualised as a lack of support. However, a lack of decision latitude would appear to have more relation to a restriction to the employee's locus of control within the workplace, as opposed to a lack of support. The effort-distress model (Frankenhauser, 1991) acknowledges that the effort required by high demanding occupations does not always result in strain. They suggest distress is experienced when the job

demands are not mitigated by personal control and decision latitude, resulting in strain. The person-environment fit and demand-control models have markedly different implications for the design of occupational stress interventions (Gugliemi & Tatrow, 1998; Schwartz & Pickering, 1996). Interventions embracing the person-environment model would focus on the individual, not just the work place, as the target of intervention in an attempt to improve the fit between person and job demands. An intervention adopting the demand-control approach would only target workplace reorganisation; aiming to lower job demands while increasing control and democracy.

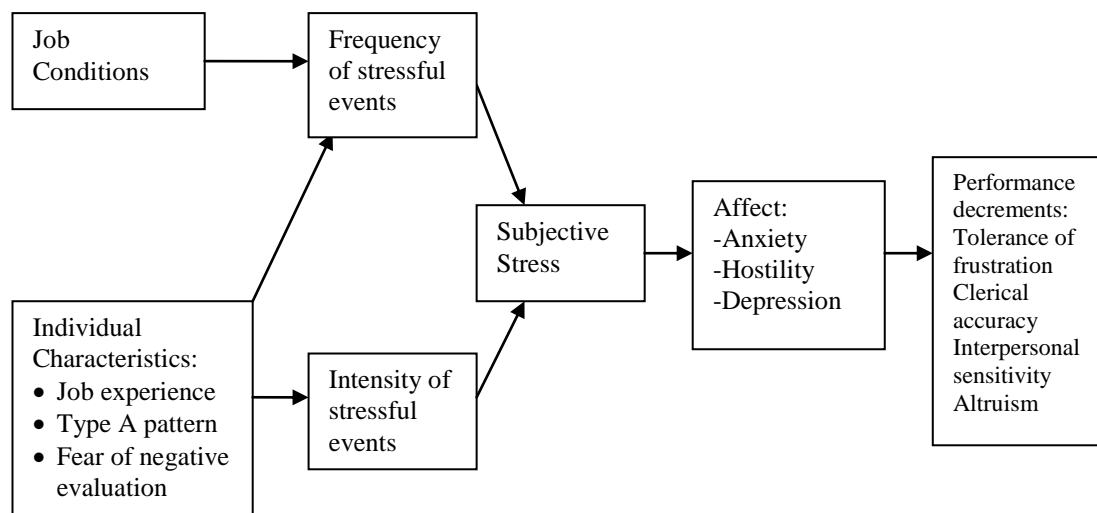
Of these frameworks, the demand-control model is acknowledged as the dominant theoretical perspective within the occupational stress arena (Gugliemi & Tatrow, 1998). Yet despite the theoretical and commercial interest in the demand-control model, it does not consider the potential that individual characteristics may have on whether a person experiences stress in the work place or not. As such, it fails to acknowledge the key factors associated with stress perception as proposed by the widely accepted model of transaction stress (Lazarus & Folkman, 1984). The person-environment fit model, however, does acknowledge the role individual differences have in the occupational stress experience by viewing individual differences in perceptions, skills, tolerance for job pressure and vulnerability to dysfunctional outcomes as key modifiers of the stress-strain relationship. However, practically the person-environment fit model works on the premise that individuals can be 'matched' to their appropriate environment. As identified by Schwartz & Pickering (1996), this model depends on the assumption that for all jobs there are suitable individuals who are not only

able to perform the job, but are not vulnerable to its associated stressors. If interventions are targeted at finding the right person for the job this could set troubling precedents for selectively hiring employees. Practically, the person-fit environment model overlooks the potential of staff development, and also only focuses on one limited facet of employment: whether they are right for the job opposed to whether they are good at it. It is suggested that, although the advantage of the person-environment fit model is the acknowledgement of individual differences, the way the model suggests application of that theory to practice, within the workplace to counter occupational stress, is not necessarily the best or only way in which it can be applied. An additional issue relating to the person-environment fit model is that it can be construed as suggesting that the responsibility for occupational stress lies with the employee. This clearly has implications in terms of the relative obligation and responsibilities of employees and employers. The current thesis emphasises the importance of individual differences in the cognitive appraisal of stressful situations. However, it does not suggest that the individual is accountable for the stressful events they may experience. Rather, the interventions explored within the current thesis are designed to deliver cognitive skills training, just as employees may receive skills training in technical or procedural areas that may enhance their capacity to work effectively. As such, it would be realistic for various organisations to be responsible for delivering such cognitive skills training to their employees, perhaps as part of their professional training or continued professional development.

Wisniewski & Gargiulo (1997) define occupational stress in teaching as “the effect of task demands that teachers face in the performance of their professional roles and responsibilities” (p 325), and propose that attributional, behavioural, physiological and psychological responses, stimulated by frequent and intense periods of stress, can culminate and influence the teacher’s commitment to remain within the profession. Eventually, if unchecked, the levels of stress being experienced may lead to burnout. Burnout has been defined as a state of physical and emotional depletion, which results from work conditions (Freudenberger, 1974). Occupational stress and burnout research developed due to real commercial problems as opposed to academic research and theory (Maslach, 2003). The current models of occupational stress reflect this a-theoretical development in that not one fully considers each aspect of the stress-coping process. As such there are advantages and disadvantages present in each model, with no one model appearing to explain completely, and propose an effective intervention for, stress in the workplace. However, it is suggested that the transactional model of stress (Lazarus & Folkamn, 1984), which has such strong theoretical basis and support, and is connected to coping methods and emotion, could be taken from general academic research and applied to the occupational domain in order to generate effective interventions for reducing stress in the workplace. This is supported by the work of Motowidlo et al. (1986) who developed a definition and model of occupational stress based closely on the Lazarus & Folkman (1984) transactional model.

Motowidlo et al’s (1986) model (see Figure 2.2) presumes that specific stressful events at work cause subjective stress which, in turn, leads to affective stress

states such as anxiety, hostility and depression, and to decrements in job performance. The level of stress experienced by each individual will depend on their perception of the frequency and intensity of these specific stressful events. In turn, these events are influenced by environmental and individual characteristics. The frequency of stressful events will depend on both the occupational environment and the characteristics of the individual, and whether they behave in ways which increase or decrease the incidence of stressful events. Motowidlo et al (1986) suggest that the intensity of stressful events is not affected by external work conditions, but is purely determined by individual characteristics, reflecting the transactional process and importance of individual appraisal that disposes people to react in specific ways that may amplify or attenuate the impact of a broad range of stressors.



**Figure 2.2:** Model of the causes of occupational stress and it's consequences for job performance (Motowidlo et al, 1986, p 619)

While this model does not overlook the importance of work conditions, which have been shown to contain significant stressors, it acknowledges that the

development of stress is dependant, to a significant degree, on individual characteristics. As such, Motowidlo et al.'s (1986) model has important implications for the development of interventions, which it suggests need to focus on the individual as through this route it is more possible, and more practicable, to impact on both frequency and intensity of experienced stress. In contrast, interventions that focus on environmental factors only influence the frequency of stressful events. This approach to intervention advocated by Motowidlo et al. (1986) is especially important regarding stress in occupations such as teaching where the environmental stressors are difficult to eradicate from the profession (Jarvis, 2002). Furthermore, a large amount of research has been conducted to explore the environmental stimuli and effects of teacher stress, however little attention has been paid to the effect individual differences play in the appraisal of the environmental stimuli, especially with regards to developing effective interventions (Jarvis, 2002).

## **2.7. Stress in Teaching**

The teaching profession is a good example of a highly socially valued job role, in which significant public funds are invested in training, and in which stress is prevalent causing problems in terms of health, time off, and withdrawal from the profession. In 2005 teaching was identified as the second most stressful job undertaken within the UK, with only ambulance drivers experiencing more stress than teachers (Johnson, Cooper, Cartwright, Donald, Tyler & Millet, 2005). Furthermore the health and safety executive has targeted teaching as one of the top five priority sectors for tackling workplace stress (Hill, 2008).



### *2.7.1. Incidence and Impact of Stress in Teaching*

Within today's society the teaching profession is widely regarded as an occupation with a high incidence of occupational stress (Jarvis, 2002). Evidence for this was emerging in the early 80s with an estimated 20% of new teachers leaving the profession within the first few years (Duke, 1984). It was speculated that this lack of retention was due to the effects of stress and, ultimately, burnout. By 1997, the effects of stress in teaching had become more prominent with 37% of secondary school staff absenteeism due to stress-related ill health (Jarvis, 2002). Teacher stress is a concept well covered by the media and has been at the centre of numerous litigation proceedings catapulting it to the forefront of teaching unions and government agencies' interest (Hill, 2008).

### *2.7.2. Definition of Stress in Teaching*

There have been various definitions and models suggested regarding the nature of teacher stress. Wisniewski & Gargiulo (1997) define teacher stress as the "effect of task demands that teachers face in the performance of their professional roles and responsibilities" (p325). This encapsulates the view of early researchers into stress in teaching in which the predominant approach was based on an epidemiological style of research, employing rating scales and questionnaires to identify the nature of work stressors and resulting job strain within education (Tennen, Affleck, Aremlí & Carney, 2000). However, this exploration of stress in teaching in terms of stimulus-response fails to

acknowledge the importance of the mediating effect of cognitive appraisal as proposed by Lazarus & Folkman (1984). Focussing solely on stressors in the workplace is embedded within traditional occupational psychology research and practice. As discussed in section 2.6.1., occupational models of stress developed a-theoretically and as such this approach of focussing solely on the environment does not acknowledge the importance of individual differences. Consequently, it fails to explain why individuals respond differently to the same stressors.

In contrast to an approach focussed on the demands of the workplace Kyriacou (2001) focused on the negative outcomes that can result, defining teacher stress as “the experience by a teacher of unpleasant, negative emotions, such as anger, anxiety, tension, frustration or depression, resulting from some aspect of their work as a teacher” (p28). Wisniewski & Gargiulo (1997) and Kyriacou’s (2001) definitions of stress reflect a common tendency to define ‘stress’ as either a stressor or experience. However, as previously discussed, stress is widely considered to be of a multi-dimensional nature, determined by the relationship between characteristics of the person and the nature of the environment. Therefore, the definition of stress provided by Lazarus and Folkman’s (1984), that stress occurs when the individual appraises the demands of the environment as greater than their coping resources, is adopted by the current thesis. A teacher therefore, will experience stress when they perceive that the demands of their environment are too great for them to deal with.

### 2.7.3. Stressors, Stress and Coping in Teachers

The majority of research surrounding the issue of stress in teaching has focused on the environmental stressors and subsequent effects (Kyriacou, 2001; Jarvis, 2002). In a review of research findings on the topic of teacher stress Kyriacou (2001) collated the predominant sources of teacher stress. These are portrayed in Table 2.4.

**Table 2.4:** *The main sources of stress facing teachers as collated in Kyriacou's (2001) review of teacher stress.*

<b>Common Stressors identified by teachers.</b>	<ul style="list-style-type: none"><li>• Teaching pupils who lack motivation</li><li>• Maintaining discipline</li><li>• Time pressures and workload</li><li>• Coping with change</li><li>• Being evaluated by others</li><li>• Dealing with colleagues</li><li>• Self-esteem and status</li><li>• Administration and management</li><li>• Role conflict and ambiguity</li><li>• Poor working conditions</li></ul>
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Tennen et al. (2000) state that many researchers have employed epidemiological approaches, using questionnaires and rating scales to ascertain the self-reported views of workers on what they consider to be work stressors and strains such as those listed above. However, Mintz (2007) highlights that the weakness of adopting purely epidemiological approaches, which focus on workplace

stressors, is that the data is incapable of providing an explanation as to why individuals react in different ways to similar stressors. Not all teachers will respond to the above stressors in the same way. Kyricaou (2001) emphasises in his review that these main sources of stress experienced by a teacher will be unique to him or her, and will depend on the complex interaction between their personality, values, skills and circumstances. This is in line with the adopted definition of stress (Lazarus & Folkman, 1984) as a teacher will only view the above sources of stress as stressful if they perceive their demands to outweigh their perceived abilities to cope effectively with them.

In conjunction with research focusing on identifying the causes of teacher stress within the workplace (see Kyriacou, 2001 for a review), suggestions have been made about the ways in which employers can help counter the negative effects of teachers stress by making changes to the environment they create. In 1998, the Education Service Advisory Committee presented a list of organisational practices to promote the characteristics of a healthy functioning organisation. However, such changes (for example decreasing class size and preventing regular national curriculum changes) are hard to implement due to the difficult and lengthy process of changing national education systems (Jarvis, 2001). Relatively little attention has been given to the importance of the teacher themselves in this situation. As within broader organisational psychology research, much of the focus on dealing with teacher stress has taken an environment-focussed approach but not an approach that includes consideration of the people involved. The problem with an environmental-focussed approach is that does not account for individual differences in stress perception and, as a

result, overlooks one of the central mechanisms in the stress process. Consequently, interventions overlook the impact of training and developing the individual to respond effectively to stressful situations.

Kyriacou (2001) stated that creating healthy organisational functioning within schools could help reduce teacher stress and proceeded to identify the characteristics of a 'healthy school'. Although the current thesis focuses on individual differences, relevant in the transactional model of stress, it supports the wider view that teacher stress must be considered as truly multi-dimensional and that therefore, the teaching environment is an important aspect within the perception of stress. However, the current thesis proposes that such environmental factors need to be considered alongside the teachers' appraisal processes in order to effectively combat teacher stress.

Whilst a plethora of research has highlighted the potential causes of teacher stress (for reviews see Kyriacou, 2001; Jarvis 2002) many studies have also been conducted to explore the nature of coping with teacher stress (Cockburn, 1996; Kyriacou, 2001). Studies have assessed what coping strategies are selected by teachers under stress and have identified that teachers frequently employ coping strategies such as those shown in Table 2.5.

**Table 2.5:** *Coping strategies employed by teachers*

Coping Behaviours	<ul style="list-style-type: none"><li>• Trying to keep problems in perspective</li><li>• Avoiding confrontations</li><li>• Attempting to relax after work</li><li>• Taking action to deal with problems</li><li>• Keeping feelings under control</li><li>• Devoting more time to particular tasks</li><li>• Discussing problems and expressing feelings to others</li><li>• Having a healthy home life</li><li>• Planning ahead and prioritising</li><li>• Recognising ones own limitations</li></ul>
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It is suggested that CBT-based optimism training, such as that employed in the Buchanan et al. (1999), Seligman et al. (2007), and Gardner et al. (2005) studies may positively impact on coping behaviours, such as those listed in Table 2.5 in two ways. Firstly, enhancing optimism through CBT-based interventions may have a positive impact on an individual's secondary appraisal, meaning they are more likely to view their coping resources as sufficient. Secondly, the thought adapting nature of CBT means that individuals become clearer and more positive in their thinking. This would have a direct impact upon the ability to successfully embrace coping behaviours such as: trying to keep problems in perspective; avoiding confrontations, keeping feelings under control and recognising one's own limitations.

#### *2.7.4. Burnout within the Teaching Profession*

Models of occupational stress generally indicate that if stress is allowed to continue unhindered it will lead to teacher burnout. This concept is connected to basic models of biological stress described by Seyle's (1956) general adaptation syndrome (GAS) which states that when exposed to a stressor for prolonged periods of time the body's resistance will become exhausted and fail. Frequent and intense periods of stress are antecedents to attributional, behavioural, physiological and psychological responses (Wisniewski & Gargiulo, 1997). If, over time, the stress being experienced is not addressed, the cumulative effect of such responses can lead to burnout and ultimately influence a teacher's desire to leave the profession. Teacher burnout is regarded to be a state of emotional, physical and attitudinal exhaustion which may develop in teachers who have been unsuccessful in coping effectively with stress over a long period of time (Wisniewski & Gargiulo, 1997). Several studies (see Gugliemi & Tatrow 1998, for a review) have suggested that teacher stress and burnout will inevitably affect the learning environment and interfere with the achievement of educational goals due to the teacher becoming detached, alienated, cynical and apathetic, taking long leaves of absence. Ultimately, teachers may choose to leave the profession entirely creating a high turnover of teachers and simultaneously decreasing the level of experience, which would also have a negative impact on the students. Such effects have already been documented by the media and teaching agencies, see section 2.6.1.

Burnout does not occur simply due to the presence of environmental or organisational stressors but, rather, the interaction between these and intra-personal characteristics which may facilitate or inhibit the manifestation of burnout. Kokkinos (2007) highlights that, despite the transactional approach, research has failed to systematically consider the role of person variables when studying the incidence of burnout within the teaching profession. In a study of 447 teachers, Kokkinos (2007) investigated the association between burnout, the Big Five personality traits (neuroticism, extraversion, agreeableness, openness and conscientiousness) and job stressors. Results showed that both personality and work-related stressors were associated with burnout dimensions and Kokkinos (2007) concluded that both factors should be taken into consideration when studying the burnout phenomenon. Whilst Kokkinos (2007) rightly emphasised the importance of individual characteristics in understanding burnout in teachers, he used a trait model of personality. This is limiting, due to the concept that traits can't be changed, in terms of the development, and application, of teacher stress interventions as it implies that teachers are predisposed to experience burnout and cannot actively alter this. The current thesis does not focus specifically on the outcome of extreme or prolonged stress. However, it does address the issue of how some individual characteristics, such as optimism, are malleable and may impact on the transaction between person and situation that may minimise the amount of stress experienced. Optimistic explanatory style has been successfully enhanced using CBT interventions (Buchanan et al., 1998; Seligman et al., 2007). Subsequently, the potential for interventions that might enhance optimism to reduce the incidence of burnout has clear implications for the teaching profession.



## **2.8. Stress in Student Teachers**

Stress in the teaching profession is not only experienced by qualified staff and the negative effects of stress are also becoming a concern for the providers of teacher training courses. Reports have highlighted a decrease in the recruitment of students onto subject-specific Postgraduate Certificate of Education (PGCE) courses (Chambers & Roper, 2000). The PGCE is a one-year course of professional training for teaching involving both taught aspects and practical placements. Chambers & Roper (2000) note that not only is recruitment onto such courses diminished, but retention is becoming a problem with figures showing an increasing withdrawal rate. Chambers and Roper (2000) interviewed six individuals who had withdrawn from their PGCE courses and discovered the reasons given for withdrawing were the same: workload, stress, low morale and general unhappiness. The students who withdrew from teacher training in the Chambers & Roper (2000) study experienced the same pressures, such as workload, as those who completed the course. This is further support for the concept that individuals will appraise certain situations in different way, resulting in varying levels of stress. Chambers & Roper (2000) conclude that it was during the practical experience of teaching that the students found the demands more than they could cope with.

For many students undertaking a PGCE, the practical components of the course will often be their first taste of life as a teacher. Furthermore, many student-teachers view their last teaching practicum as the final test of their teaching

abilities (Fives, Hamman & Olivarez, 2007). As such, these in-school placements can be a significant stressor of the individual, to the extent that Fives et al. (2007) propose that the process that can ultimately lead to teacher burnout can begin as early as teacher training. This suggests that experiences during teacher training can have a significant impact on the individual's later career as a teacher. One could reason that if individuals are susceptible to burnout during the training period, this is also an effective time in which to help them develop appropriate appraisal and coping responses.

## **2.9. Teacher Stress Intervention Studies**

In 2001, following a review of the teacher stress literature, Kyriacou identified five avenues which required future research. One of these was the development and assessment of particular intervention strategies to help teachers and schools reduce teachers stress. This call for interventions to combat teacher stress was supported by Jarvis (2002) who, following a review of literature, described the volume of research into interventions to combat teacher stress as “miniscule” (p4). Jarvis (2002) stated that the most obvious future direction for research should include outcome studies testing the effectiveness of intervention strategies. In an attempt to see if this issue had been addressed in teacher stress research since 2002, literature searches were conducted using electronic databases. A search of the psychological database, psychinfo, produced no matching results for papers relating to teacher stress interventions. A search of ASSIA returned 19 potential papers. However, of these 19, four were unrelated to teacher stress, 12 were interventions targeted at pupils and two focused on the

causes of teacher stress rather than potential interventions. The remaining study assessed changes in teacher stress as the results of a pupil-based intervention programme (Lhospital & Gregory, 2009). As such, it seems there is still a lack of research focusing on the effectiveness of interventions aimed at reducing teacher stress.

As identified in sections 2.3 and 2.4 of the current chapter, individual differences will influence whether an individual perceives a situation to be stressful or not. In his 2002 review of literature, Jarvis proposed that cognitive factors affecting the individual vulnerability of teachers was one of the three broad causal factors of teacher stress. In clinical and counselling psychology contexts, Cognitive Behavioural Therapy (CBT) has been successfully used to alter maladaptive cognitions in relation to a number of stressors such as anxiety and depression (Schaffer et al., 1981), panic disorder and agoraphobia (Sharp et al., 2004), and depression through enhancing learned optimism (Buchanan et al., 1999; Gardner et al., 2005; Seligman., 2007). However, there are no outcome studies for CBT-based interventions conducted within the educational domain, and Jarvis (2002) specifically states the need for research into the use of CBT stress management programmes within the teaching profession. The highly intense and stressful nature of teaching makes it an ideal naturalistic environment in which to assess the impact of a CBT optimism training programme.

## **2.10. Aims and Research Questions**

Following a methodological and theoretical analysis of research into stress, burnout and health in teachers, Gugliemi & Tatrow (1998) concluded that the topic is ready for a shift to theory-based investigations that explore casual models of teacher stress and health with more sophisticated research designs and measurement strategies. Both Kyriacou (2001) and Jarvis (2002) highlight the need for future research to focus on the development and application of effective interventions that combat stress in teaching. Given the success of previous CBT-based optimism training programmes in enhancing explanatory style (Buchanan et al, 1999; Gardner et al, 2005; Seligman, 2007), and the association between optimistic explanatory style and lower levels of stress in student teachers (Bryant, 2005, Unpublished MSc Thesis), the current thesis aims to investigate the effects of a CBT-based optimism training programme on the amount of stress reported by students during their one-year subject specific postgraduate diploma of education and their subsequent probationary year of teaching. A secondary aim of the research is to further explore the potential relationship between Explanatory Style (Seligman, 2006) and Dispositional Optimism (Scheier & Carver, 1985). The study will monitor if a CBT-based intervention aimed at enhancing explanatory style will also impact upon dispositional optimism.

## **Chapter 3**

### **Comparison of Measurement Tools for Explanatory Style and Dispositional Optimism**

#### **3.1. Introduction**

The past couple of decades have witnessed an increasing amount of interest surrounding optimism. The result has seen what was once a vague outlook-on-life, grounded in philosophical roots, develop into a more clearly defined construct studied increasingly within the psychological domain. As such, there is a clearer view today regarding the benefits of optimism and the drawbacks of pessimism than ever before. Regardless of the varying conceptualisations of optimism within psychological research, it has been consistently linked to positive mood and good morale; to perseverance and effective problem solving; to academic, athletic, military, occupational, and political success; to popularity; and, convincingly, to good health. In turn, pessimism is widely accepted to foreshadow depression, passivity, failure, social estrangement, morbidity and mortality (Peterson, 2000).

Psychologists commonly reside in one of two parallel universes when it comes to the meaning and study of optimism: explanatory style and dispositional optimism. Explanatory style theorists use the terms optimism and pessimism to label how people commonly attribute causes to the events that happen to them (Abramson et al., 1978; Seligman, 2006). Dispositional optimism, however,

refers to people's general expectancies regarding the future (Scheier & Carver, 1985). It is regarded as a stable personality characteristic which has important implications for the manner in which individuals regulate their actions. Each concept is considered briefly below.

Explanatory style is believed to stem directly from an individual's view of their place in the world and is a habit of thought, learned throughout childhood and adolescence (Seligman, 2006). The Reformulated Learned Helplessness Theory (RLHT: Abramson, Seligman & Teasdale, 1978) proposes three crucial dimensions to explanatory style: permanence (stable versus temporary), pervasiveness (global versus specific) and personalisation (internal versus external). The terms optimism and pessimism have been applied to distinguish between two ends of a continuum regarding explanatory style (Revich & Gillham, 2003). Individuals with pessimistic explanatory styles believe the causes of bad events to be permanent, global and internal whilst optimists attribute bad events to temporary, specific and external factors. Seligman (2006) proposes that the reverse is true when explaining good events. Abramson et al. (1978) stipulate that the routine explanatory style adopted by an individual influences their general outlook and behaviour, and dictates expectations regarding the future.

Scheier & Carver's (1985) concept of dispositional optimism reflects exactly the traditional definition of optimism found in today's dictionaries. They believe people differ widely in how they approach the world. Some tend to be favourable in their outlook; these optimists expect things to go their way, and

generally believe that good things will happen to them. Contrary to these individuals, pessimists expect things not to go their way and anticipate bad outcomes. These individual differences in outlook/expectancy are considered to be relatively stable across time and context. The belief that dispositional optimism has important behavioural consequences is grounded largely within a Control Theory model of self-regulation (Carver & Scheier, 1983). They embrace the theory that goal directed behaviour will cause the individual's attention to shift onto themselves in an attempt to minimise any discrepancy between current behaviour and the desired goal. Any obstacles met during this process will ultimately yield an outcome expectancy which directly influences subsequent behaviour. Scheier & Carver (1985) propose that during this process, an optimistic person will view the outcome expectancy as favourable resulting in renewed effort. A pessimist will, however, view the outcome expectancy as unfavourable and causing reduced effort or, in extreme cases, complete disengagement from the activity.

Explanatory style and dispositional optimism are both used regularly in personality and clinical psychology research. However, little attention has been paid to the relationship between the constructs (Isaacowitz, 2005). It's stipulated that explanatory style influences individuals general outlook and expectancies (Abramson et al., 1978). In turn, one could ensue that an individual's general outlook would impact upon their explanations for events, thus suggesting a possible link between the two theories. Despite the respective construct authors acknowledging the two concepts would more than likely impact upon each other, much of the research, and therefore measurement tools, has focused on one

definition or the other (Reivich & Gillham, 2003). Only a handful of studies have employed measures of both constructs simultaneously and those that have (Hirsch & Connor, 2006; Isaacowitz, 2005; & Tomakowsky et al., 2001), have reported minimal relationships between the two but similar relationships to other personality variables such as well-being and subjective health.

Explanatory style is predominantly measured via self-report tools, the Attributional Style Questionnaire (ASQ: Peterson et al., 1982). The ASQ has been used to demonstrate how varying levels of explanatory style can affect health, stress, susceptibility to depression, productivity and perseverance in the face of adversity (Buchanan et al., 1999; Seligman et al., 2007; Gardner et al., 2005; Jackson et al., 2002; Seligman & Schulman, 1986). The composite scores which are derived from the ASQ have been shown to have satisfactory internal consistencies and the measure has moderate to high internal consistency (Peterson et al., 1982). Seligman (2006) also published a self-test tool, referred to throughout this paper as the Test for Explanatory Style (TES), which allowed people to answer a series of questions and then derive their own level of learned optimism. Although less familiar as a research tool, this measure assesses explanatory style along the three dimensions for both good and bad events – similar to the ASQ. Unlike the ASQ, however, the TES does not require participants to come up with their own explanations of an event. Instead they are given a choice of explanations. Dispositional Optimism is widely assessed using the Life Orientation Test (LOT: Sheier & Carver, 1985). The LOT has been used in studies linking high levels of dispositional optimism to better general health, lower distress levels and better coping responses, higher perceived control, lower



levels of job stress and less work/non-work conflict, (David et al., 2006; Lobel et al., 2002; Tuten & Neidermeyer, 2004; Tomakowsky et al., 2001).

The foundation of all rigorous research designs is the use of measurement tools that are psychometrically sound (DeVon et al., 2007). Therefore, before conducting extensive research into optimism, it is essential to determine which of the current optimism measures is the most effective. Confirmation of the validity and reliability of such self-report instruments is a pre-requisite for assuring the integrity of study findings (DeVon et al., 2007). Validity refers to the ability of the instrument to measure the attributes or construct under study, while reliability is fundamentally concerned with issues of stability of measures: the ability of the instrument to consistently measure an attribute.

Given the importance of rigorous measures within experimental designs and the lack of literature studying possible links between the two optimism constructs, the study reported here has two main aims. The first is to compare the validity and reliability of the ASQ and TES in order to determine which instrument will be used for future research into explanatory style. The second aim is to compare responses to the explanatory style measures (the ASQ and TES) with responses to the dispositional optimism measure (the LOT) in order to see if individuals display any similarities across the two constructs.

## **3.2. Method**

### *3.2.1 Participants*

Approximately 290 students enrolled on courses at the University of Edinburgh were approached regarding participation in the study, of these 100 (34%) students agreed to participate in the study (39 male, 61 female) ranging in age from 18 to 59 years ( $M = 24$ ,  $sd=7.7$ ). However, only 17 of these participants completed the test-re-test portion of the study. Recruitment was conducted via face to face contact with the researcher, followed by emails posted on the relevant course forums containing the link to the electronic questionnaires.

### *3.2.2. Measures*

*Attributional Style Questionnaire (ASQ).* The ASQ (Peterson et al., 1982) is a self-report instrument which presents 12 hypothetical situations (six positive and six negative). The respondent is asked to consider each situation happening to them and state what they believe would have been the one major cause. Respondents then rate on a seven-point scale the degree to which the cause they've reported is internal or external, stable or unstable, global or specific (1 = external/unstable/specific, 7 = internal/stable/global). The ASQ yields six individual dimensions scores (the average personalisation of positive and negative events, average stability of positive and negative events, and the average globality of positive and negative events) and three composite scores: the composite explanatory style for negative events, the composite explanatory

style for positive events and finally a total explanatory style score determined by subtracting the negative composite from the positive composite (PC-NC). A copy of the ASQ can be found in Appendix 3)

*Test of Explanatory Style (TES).* The TES (Seligman, 2006) is also designed to measure an individual's explanatory style. The questionnaire consists of 48 scenarios, each one followed by two possible causes (see Appendix 4). For each item, the respondent is required to vividly imagine themselves in that situation and then circle which of the two reasons they believe they would attribute the scenario to. Of the 48 items, 24 relate to positive scenarios and 24 to negative scenarios. The TES is scored to produce six individual scores and three composite scores. The six individual scores are compiled to produce a measure of the internality, globality and permanence of positive events and the internality, globality and permanence of negative events. The sum of each of these is then used to produce a composite dimension for positive events and one for negative events. Finally by subtracting the total negative score from the total positive score, the researcher is left with an overall score of explanatory style.

*The Life Orientation Test (LOT).* The LOT (Scheier & Carver, 1985) consists of 12 items, each in the form of a generalised statement (see Appendix 5). Of these 12 items, four are phrased positively, four negatively and four are simply filler items, included by the authors in an attempt to disguise the underlying purpose of the test (Sheier & Carver, 1985). Respondents are asked to indicate the extent to which they agree with each of the statements on a scale of 4 (strongly agree) to 0 (strongly disagree). Prior to scoring the LOT, the four filler items are discarded

and the scores for the four negatively phrased statements are reversed. Subsequently the sum of the eight remaining items provides an overall level of dispositional optimism.

### *3.2.3. Procedure*

The researcher met with students during various lectures in order to explain, in person, the purposes and procedures of the study. At this point, students were asked if they would be willing to participate in the study and were informed that an email would follow with full instructions and a link to the relevant questionnaires. Informed consent was gained electronically before participants could progress to complete the questionnaires.

Three questionnaires designed to measure optimism were distributed to participants electronically via an email link. Research has shown web based data collection to be a suitable alternative to the more traditional paper and pencil method (Miller et al., 2002). No negative effects of distributing questionnaires via the internet were shown in the Miller et al. study: completing measures via the web did not reduce or enhance the consistency of responses; nor did it compromise the reliability of results drawn from the data. Furthermore, the Miller et al. study also showed that when breaks were taken mid-way through online completion, the data collected was not affected. Miller et al. (2002) did, however, amplify some positive reasons for distributing instruments via the web: it is cost efficient, can minimise data collection and entry errors, increases survey accessibility and was the method preferred by 92% of the participants. The

current research employed a web based method of distribution largely for logistical reasons – it allowed for a larger sample size to be approached and would prevent lecturers having to relinquish lecture time to allow questionnaire completion during their classes.

The three questionnaires in (ASQ, TES, LOT) were combined to create one electronic survey, meaning participants completed all three at the same time. A pilot study had shown that the combined questionnaires would take approximately 30 minutes to complete, and participants were made aware of this. Participants were asked to complete the questionnaire twice, once at any stage between the dates of 14<sup>th</sup> to 31<sup>st</sup> of March 2008, and then again between the 14<sup>th</sup> and 30<sup>th</sup> April 2008. Once participants had completed the three questionnaires, the data was automatically returned to the researcher.

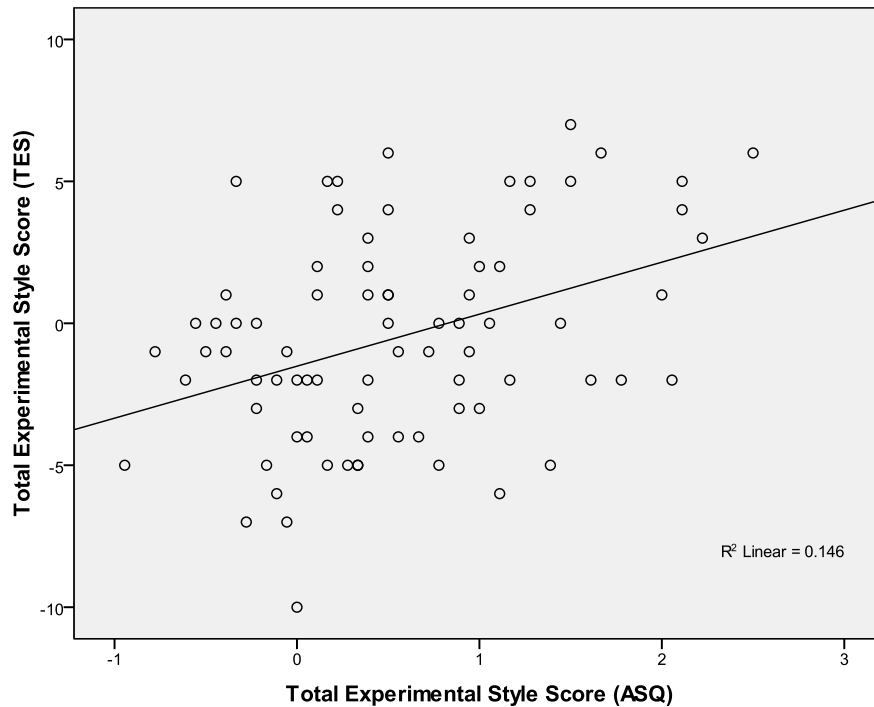
#### *3.2.4. Statistical Analysis*

Pearson's r test for correlation coefficient was used to examine the measures of explanatory style for evidence of convergent and divergent validity as recommended by DeVon et al. (2007). In order to assess the test-retest reliability of each individual measure, the correlations between each composite score and individual questions were conducted to indicate the stability of each instrument for use in repeated measures designs as recommended by DeVon et al. (2007). Pearson's r test for correlation coefficient was also used to explore the potential relationship between explanatory style and dispositional optimism.

### 3.3. Results

#### 3.3.1. *Comparing Explanatory Style Measurement Tools*

A Pearson's  $r$  correlation coefficient was conducted to test the convergent validity of the explanatory style measurement tools: the Attributional Style Questionnaire (ASQ: Peterson et al., 1982) and the Test of Explanatory Style (TES: Seligman, 2006). There was a significant positive correlation between the total scores of explanatory style produced by each tool ( $r = .382$ ,  $n = 79$ ,  $p = 0.001$ ). This relationship is portrayed in Figure 3.1. Pearson's  $r$  correlations were also computed for the positive (explanatory style of positive events) and negative (explanatory style of negative events) sub-components of the two explanatory style measurement tools. Results show that there was a significant positive correlation between the Positive Composite (PC) of the ASQ and the positive sub-component of the TES ( $r = .352$ ,  $n = 79$ ,  $p = 0.001$ ). Likewise, there was a significant positive correlation between the negative composite (NC) of the ASQ and the negative sub-component of the TES ( $r = .332$ ,  $n = 79$ ,  $p = 0.003$ ).



**Figure 3.1:** Scatterplot showing the correlation ( $r = .332$ ,  $n = 79$ ,  $p = 0.003$ ) between explanatory style as measured by the Attributional Style Questionnaire (ASQ: Peterson et al., 1982) and the Test of Explanatory Style (TES: Seligman, 2006).

Calculations were made in order to determine to what extent the measurement tools are assessing the same thing. The equation used to achieve this was  $(r^2) \times 100$  and resulted in a percentage of overlap between the two measures (Thomas & Nelson, 1990). Despite the significant positive correlations, the ASQ and TES had an overlap of 13.84%, the Negative composites had an overlap of 12.39% whilst the positive composites had an overlap of 10.37%.

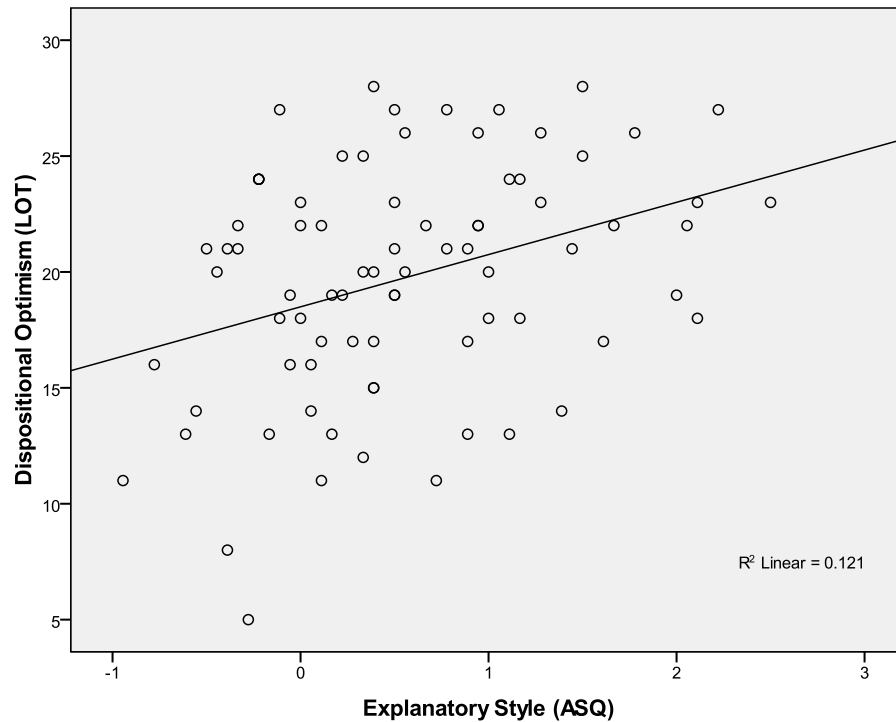
In order to explore the test-re-rest reliability of the explanatory style measurement tools, Pearson's  $r$  test for correlation was used to examine the correlation between the repeated measures of the total scores, sub-components and individual items for both the ASQ and TES. Results showed that the ASQ reported a significant positive correlation for its total score of explanatory style ( $r$

= .670,  $n = 79$ ,  $p = 0.003$ ), its positive composite ( $r = .800$ ,  $n = 79$ ,  $p < 0.001$ ) and negative composite ( $r = .659$ ,  $n = 79$ ,  $p = 0.004$ ). Analysis of the test-retest reliability of the individual items of the ASQ showed that 29 of the 48 items (60%) were significantly positively correlated with a significance level of either  $p < 0.05$  or  $p < 0.01$ . The repeated measures total scores for explanatory style derived from the TES showed a significant positive correlation ( $r = .776$ ,  $n = 79$ ,  $p < 0.001$ ), as did the sub-component for positive events ( $r = .829$ ,  $n = 79$ ,  $p < 0.001$ ). The sub-component for negative events however, showed no significant correlation over the two measurement points ( $r = .163$ ,  $n = 79$ ,  $p = 0.531$ ). Analysis of the individual items on the TES showed that 19 of the 48 items (39%) were significantly positively correlated on the test-retest assessment points.

### 3.3.2. *Explanatory Style and Dispositional Optimism*

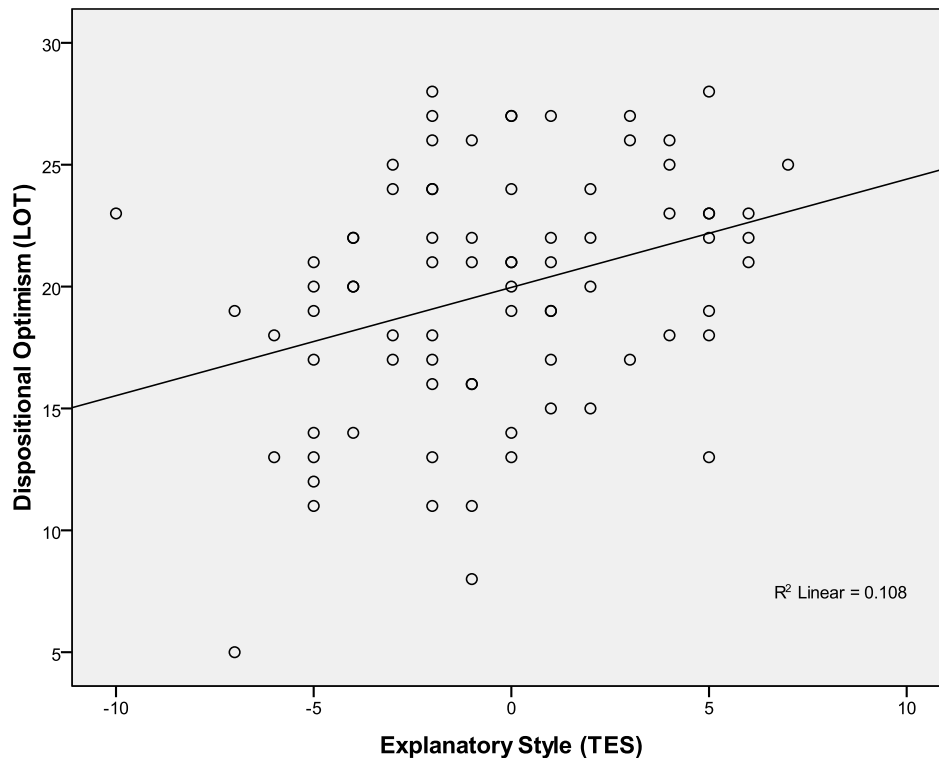
Pearson's  $r$  test for correlation coefficient was conducted to explore the potential relationship between explanatory style and dispositional optimism. Results showed a significant positive correlation ( $r = .348$ ,  $n = 79$ ,  $p = 0.002$ ) between explanatory style, as measured by the ASQ (Peterson et al., 1982), and dispositional optimism, as measured by the Learned Optimism Test (LOT: Scheier & Carver, 1985). This relationship is shown below in Figure 3.2.





**Figure 3.2:** Scatterplot demonstrating the significant relationship ( $r = .348$ ,  $n = 79$ ,  $p = 0.002$ ) between explanatory style, as measured by the Attributional Style Questionnaire (ASQ: Peterson et al., 1982), and dispositional optimism, as measured by the Life Orientation Test (LOT: Scheier & Carver, 1985).

There was also a significant positive correlation between explanatory style as measured by the TES (Seligman, 2006) and dispositional optimism as measured by the LOT ( $r = .329$ ,  $n = 79$ ,  $p = 0.003$ ). This can be seen below in Figure 3.3.



**Figure 3.3:** Scatterplot showing the significant relationship ( $r = .329$ ,  $n = 79$ ,  $p = 0.003$ ) between explanatory style, as measured by the Test for Explanatory Style (TES: Seligman, 2006), and dispositional optimism, as measured by the Life Orientation Test (LOT: Scheier & Carver, 1985).

### 3.4. Discussion

The current study had two aims. The first was to compare the validity and test-retest reliability of two measurement tools of explanatory style: the Attributional Style Questionnaire (ASQ: Peterson et al., 1982) and the Test of Explanatory Style (TES: Seligman, 2006). Results suggest that the two measures possess a moderate to high level of convergent validity, supporting that they are evaluating the same theoretical construct. The ASQ demonstrated a higher level of internal stability and test-retest reliability than the TES, indicating it is a more suitable tool to use in a repeated measures design. The secondary aim of the current study was to explore the potential relationship between the two optimism

constructs, explanatory style (Ambramson et al., 1978; Seligman, 2006) and dispositional optimism (Scheier & Carver, 1985). Results suggest that individuals who scored highly on their optimistic explanatory style also scored highly on their measure of dispositional optimism, implying the two theoretically different constructs may be linked. These findings are discussed in more detail below.

#### *3.4.1. Comparing Explanatory Style Measurement Tools*

Results indicate that the ASQ (Peterson et al., 1982) and the TES (Seligman, 2006) have a moderate to high convergent validity, suggesting they are measuring the same theoretical construct. This can be concluded through the presence of a significantly positive correlation between the total scores. Convergent validity can be assumed when correlations with a validated instrument measuring the same construct are high (DeVon, 2007). Given that the ASQ has been previously shown to have a high construct validity (Peterson et al., 1982; Schulman et al., 1989), it can be assumed that both instruments are assessing explanatory style. Furthermore, DeVon and Ferrans (2003) highlighted that correlations anywhere between .11 and .88 are used in empirical studies to support the validity of a psychometric tool and that correlation coefficients above .50 are rare. Therefore, it is suggested that the correlation coefficient of .382 found between the total scores of explanatory style produced by each instrument is enough to conclude the presence of a moderate to high convergence validity. Further support for the convergent validity of the tools comes from the significant positive correlation coefficients between the respective positive (.352)

and negative (.332) subcomponents of each measurement tool. These findings imply that both instruments generate a valid score for the explanatory style of positive and of negative events.

Due to the fact that the current thesis intends to measure explanatory style repeatedly over a longitudinal period of time, it was important for the current pilot study to establish which of the two measures of explanatory style would be most reliable in a repeated measures design. As recommended by DeVon et al. (2007) correlations between the total scores, composite scores and individual items were assessed in order to determine the test-retest reliability of the instruments. Results indicated that the ASQ has greater stability for repeated use. There was a significant positive correlation between the total, positive and negative sub-component scores of the ASQ when completed twice. This suggests that the ASQ has a high re-test reliability and would be a reliable tool to accurately measure an individual's explanatory style over numerous testing points. The TES, however, only reported a significant positive correlation for the total score and positive sub-component when measured twice over a month long period. There was no significant correlation between the two negative composite scores. This indicates that although the measurement tool may be reliable over time when looking at overall explanatory style and the explanatory style of good events, it does not provide reliable repeated measures of an individual's explanatory style of negative events. As pointed out by Bryant (2005, unpublished MSc Thesis) and Peterson et al. (1982), it is important to consider both positive and negative events when exploring issues pertaining to explanatory style. Furthermore, the repeated use of the ASQ resulted in a

significant positive correlation of 60% of the individual items on the questionnaire, whilst the TES reported only 39%. This suggests that the ASQ is not only more reliable over time on the composite scores but also on the scoring of individual items.

#### *3.4.2. Explanatory Style and Dispositional Optimism*

Results suggest that there is a relationship between an individual's level of explanatory style and their level of dispositional optimism. The significant positive correlation suggests that individuals who scored highly on their explanatory style score, also scored highly on their dispositional optimism score. This was the case when explanatory style was assessed by the ASQ and the TES. These results imply that, despite having different theoretical backgrounds, the two optimism constructs could be linked. The apparent relationship between the two provides support for Ambramson et al's (1978) stipulation that the way in which people routinely attribute causes to the events in their lives (via their explanatory style) determines their outlook regarding future events. The relationship portrayed by these results may also support the concept that an individual's general outlook, or expectancies, in life may influence the way in which they explain events in their lives. As such, these results may suggest that explanatory style and dispositional optimism are not theoretically different, but perhaps different parts of a cyclic optimism process.

Previous research comparing explanatory style and dispositional optimism has been sparse (Peterson, 2000). In 2001, Tomakowsky et al. explored the

associations of the two optimism constructs with each other and concluded that the two optimism measures (ASQ and LOT) tap into different types of optimism. The current results would appear to contradict these findings. It is suggest that opposed to tapping into different constructs, the respective measures assess differing aspects of the cyclic process described above. This is speculative, and what is evident from the contradictory results surrounding the relationship between explanatory style and dispositional optimism is that further research is required in order to understand more about these constructs and their interaction with each other.

#### *3.4.3. Limitations*

There was a sizable (83%) participant drop out in the repeated measure phase of the study. Only 17 of the initial 100 participants completed the questionnaires twice. This may have been due to the lack of face time they had with the researcher, who only met with them at the recruitment stage of the study. In future research designs, this could be prevented by booking in regular face-time with participants, in order to remind them what to do and when. The reason for such a large drop in participation may also have been because of a lack of perceived personal relevance, and subsequent lack of motivation, from the participants. This is also reflected in the fact that only 100 of the original 290 Edinburgh University students approached agreed to participate. It is feasible that the participants did not deem completing the study important or relevant to themselves. An added factor may have been the amount of time it took to complete all three questionnaires (approximately 30 minutes). It may be that the

amount of time to complete the questionnaires put participants off repeating the exercise. Whilst 30 minutes is quite a long amount of time, completion was made easier for participants by using an electronic format, so they could complete it at a time and place which suited them and didn't have to put any effort in to return the results to the researcher, because they were automatically sent back via the website.

#### *3.4.4. Implications*

The findings presented in the current study have important implications for both the research design of the current thesis and future research pertaining to optimism. Firstly, the current results show that although the ASQ and TES both measure an individual's explanatory style effectively, the ASQ is a more reliable tool for use over multiple assessment points. As the current thesis aims to assess the impact of a cognitive-behavioural intervention on explanatory style it is highly important to have a reliable measurement tool. This will help ensure that any change in explanatory style is due to the intervention and not the erratic nature of the assessment tool. For these reasons, the ASQ shall be adopted to assess explanatory style throughout the various research studies in the current thesis.

The current findings also have implications for future research involving the study of either explanatory style, dispositional optimism or both. These findings suggest there is a relationship between an individual's level of explanatory style and their level of dispositional optimism. However, it cannot provide

information as to the nature of this relationship. As such, it is suggested that future research is warranted to explore this relationship further.

#### *3.4.5. Conclusion*

In conclusion, it would appear that both the Attributional Style Questionnaire (ASQ: Peterson et al., 1982) and the Test of Explanatory Style (TES: Seligman, 2006) are valid measurements of explanatory style. However, the current results of the test-retest reliability analysis indicate that the ASQ is the more stable tool over repeated use. Therefore it is recommended that the ASQ be adopted in future repeated measures designs. Current results suggest that there is a relationship between the two prominent theoretical models of optimism, optimistic explanatory style and dispositional optimism. However, further research is required in order to fully understand the nature and functioning of this relationship.



## **Chapter 4**

### **Underpinning Methodological Issues**

The following chapter outlines and discusses some of the methodological issues associated with the design and execution of the research presented throughout this thesis. Initially the present chapter addresses the advantages and disadvantages of employing quantitative, qualitative and mixed research methods and their respective research paradigms. Subsequently the advantages and disadvantages of using longitudinal, repeated measures, and field-based research methods are discussed in relation to the current thesis and. Finally, the ethical considerations associated with the current research are identified and discussed.

The current thesis investigated the impact of a cognitive behavioural therapy (CBT)-based optimism intervention on the perceived stress of student teachers during their one-year subject specific postgraduate diploma of education (PGDE). This involved the measurement of variations in individual differences and stress manifestations in a constantly changing, dynamic environment. To accomplish this effectively required a complex methodology which employed a mixed methods approach in order to effectively measure levels of explanatory style and perceived stress repeatedly, over a longitudinal period, in a naturalistic environment. It was also necessary to assess perceived applicability and effectiveness of the skills, and understand how participants utilised the skills in real life teaching scenarios. The current chapter provides a brief introduction relating to the rationale behind methodological choices and then progresses to

discuss the issues associated with each of these methodology design features individually.

Chapter 3 evaluated the effectiveness of psychometric measures to effectively and reliably measure explanatory style. These self-report tools provide a measure of explanatory style at a certain point in time which, unless acted upon by an external stimulus, should remain relatively stable in an individual (Burns & Seligman, 1989). In order to assess the impact of an intervention aimed at enhancing explanatory style, a repeated measures design was employed. Furthermore, the current intervention employed cognitive behavioural techniques, which are known to be more effective with time and practice (Neenan & Dryden, 2005). As such, it is necessary that the current thesis involved a longitudinal element in order to monitor explanatory style and stress over an adequate amount of time to be able to identify any relevant changes. The methodological connotations of conducting a longitudinal research study are discussed in more depth later in this chapter.

The causes and effects of stress in teaching have been widely researched, resulting in a comprehensive list of the potential stressors faced by teachers every day (see Chapter 2, Table 2.4: Kyriacou, 2001). These stressors are part of the dynamic environment associated with teaching. Consequently, they would be hard to recreate in a laboratory based study, compromising the ecological validity of the research. Furthermore, individual teachers will experience varying levels of stress in response to such stressors, depending on the outcome of their appraisal process (Lazarus & Folkman, 1984). This appraisal process will be

mediated by individual characteristics such as optimism. In order to assess the effectiveness of an intervention aimed at reducing stress, the study must be conducted within the naturalistic environment. The process of conducting scientific investigations in naturalistic setting has specific issues that must be considered from a methodological perspective which are outlined in this chapter.

#### **4.1. Mixed Methods Design**

The mixed methods approach incorporates techniques from both quantitative and qualitative research traditions and has particular value when research is trying to explore a question in a complex educational or social context (Teddle & Tashakkori, 2009). Using both approaches enabled the researcher to collect and analyse data, integrate the findings and draw inferences from a single study, and over several studies (Tashakkori & Creswell, 2007). As such, the mixed methods approach was used to answer questions that could not be answered in any other way (Mertens, 2010). Furthermore, the use of a mixed methods design strengthened the researcher's ability to draw conclusions about the problem under study. Morse (2003) stated that a primary advantage of using a mixed methods design is that by combining, and therefore increasing, the number of research strategies used within a particular project, the researcher is able to broaden the dimensions and scope of the study in question.

*“By using more than one method within a research study we are able to obtain a more complete picture of human behaviour and experience. Thus we are better able to hasten our*

*understanding and achieve our research goals more quickly.”*

(Morse, 2003, p189)

Another advantage of incorporating both quantitative and qualitative research methods within a design is that it introduces multiple data sources and types that offer a means of triangulating findings to increase reliability and validity. The concept of triangulation was based on the assumption that any bias inherent in particular data sources, investigators or method, would be identified when used in conjunction with other data sources, investigators or methods (Creswell, 1994). Thus triangulation uses convergence of results to strengthen validity of findings, and can be achieved through mixing quantitative and qualitative research methods. In order to identify how a mixed methods approach neutralises any biases, the nature, and various advantages and disadvantages, of both quantitative and qualitative research methods are considered below.

#### *4.1.1. Quantitative and Qualitative Research Methods*

Quantitative research involves explaining phenomena via the collection and statistical analysis of numerical data (Muijs, 2004). Extreme quantitative based research is rooted in a positivist paradigm and assumes that an objective, true reality exists which is governed by cause and effect relationships between independent and dependent variables which can be accurately measured. The positivist paradigm embraces the beliefs that knowledge is accurate and certain, and can be described in a systematic way. The aim of research within this paradigm is to describe, explain, predict and manipulate phenomena. Within this paradigm the role of the researcher is objective, free from bias and independent

from the subject, often controlling or manipulating the investigated variables. This approach, and in particular the belief that there is a single true reality can be measured without any bias is criticised by those who adopt a qualitative approach to research (Muijs, 2004).

Qualitative based research comprises a broad family of different philosophical approaches to understanding the relationships between people, events and outcomes. Although this family of approaches is not unified by a single world view in general, such approaches recognise that the relationships they investigate exist in a world that is complex and dynamic. It is constructed, interpreted and experienced by people in their interactions with each other and with the wider social environment. Researchers who adopt a qualitative approach believe that reality is subjective because people experience reality in different ways and, as such, a person's reality can only ever be imperfectly grasped. Qualitative research assumes that knowledge is based not only on what is observable but also on subjective beliefs, values, reasons and understandings. Knowledge is about the way in which people make meaning in their lives. Consequently the role of research is to study mental, social and cultural phenomena in an attempt to understand why people behave in a certain way (Mertens, 2010). These beliefs explain why qualitative research often involves interviews, case studies and observations, since the only way to begin to understand another persons' real lived experience is to listen to them explain it within a context-rich milieu. However, a completely qualitative approach is also problematic as the researcher is a co-creator of meaning because the experience of participants is interpreted by the researcher. In this way the researcher becomes part of the data collection and

inevitably brings their own subjective experience and biases to both data collection and analysis. This may affect the quality of the research by questioning its accuracy and credibility. Consequently it would appear that both quantitative and qualitative research have disadvantages when used in isolation to explore complex phenomenon. As such, a blend of the two was needed to explore the impact of optimism training on explanatory style and subsequent stress in student teachers, if a comprehensive understanding of such relationships was to be gained from the current thesis. The philosophical problems associated with employing two contrasting methodologies are discussed below.

#### *4.1.2. Philosophical Assumptions of Mixed Methods*

As can be seen from section 4.1.1., purist quantitative and qualitative research resides in different paradigms. There is no common ground between the two types of research methods. However, Johnson & Onwuegbuzie (2004) advocate the concept of epistemological and methodological pluralism within educational research to foster the conduct of more effective research. Contemporary research has to be increasingly interdisciplinary, complex and dynamic, and in order to produce research that is reflective of the real world. To achieve this researchers must understand and embrace the facets of the multiple methods available. Taking a non-purist approach allows researchers to use a multi-disciplinary design that offers the best chance of answering the specific research questions (Johnson & Onwuegbuzie, 2004). This does not mean however, that researchers who employ a mixed methods design should conduct ‘a-paradigmatic’ research and ignore philosophical assumptions. Greene &

Caracelli (2003) propose that mixed method researchers who attend too little to philosophical ideas and traditions are insufficiently reflective. Furthermore, examining the philosophical assumptions underlying research can offer a better understanding of the complex world in which psychologists and educators operate (Mertens, 2010). As such, it is important for researchers conducting mixed methods to be aware of the various paradigms from which their chosen methods originate. The pragmatism paradigm has been advocated as one philosophical orientation to guide mixed method researchers (Teddie & Tashakkori, 2009; Johnson & Onwuegbuzie, 2004). The pragmatist paradigm considers the research question to be more important than either the method used or the worldview that is supposed to underlie the method (Mertens, 2010). This approach offers itself to the use of multiple paradigms and methods at various points throughout the research in order to effectively answer the question being asked at that particular time. Furthermore, Johnson & Onwuegbuzie (2004) advocate that taking a pragmatic and balanced or pluralist approach will help improve communication between researchers from different paradigms as they attempt to advance knowledge.

#### *4.1.3. Conducting Mixed Methods Research*

The goal of mixed methods design is not to replace either quantitative or qualitative research, but rather to draw from the strengths and minimise the weaknesses of both within a single study and across studies (Johnson &

Onwuegbuzie, 2004). Specific mixed methods approaches are defined by the ordering of the application of quantitative and qualitative data collection, as well as at what point the combination occurs (Mertens, 2010). For example, the different forms of data can be collected in parallel form, where the quantitative and qualitative data is collected and analysed simultaneously, or in sequential form, where one type of data provides the basis for collection of another type of data. When mixed methods are conducted in parallel form, the final inferences are based on the analysis and interpretation of both sources of data. A sequential design, however, is one in which the conclusions from one strand lead to the implementation of the next strand. Within the current thesis, mixed methods are employed in a predominantly sequential format. The quantitative data presented in Chapters Five and Six lead to the execution of the qualitative research, which was used to explore the individual meaning, use and effectiveness of CBT-based optimism skills, presented in Chapter Seven. However, the current thesis also employed the parallel use of mixed methods. Within Chapter Seven, self-report questionnaires were administered in order to quantitatively re-measure levels of explanatory style and dispositional optimism at the time of the interview.

#### **4.2. Longitudinal Research**

Longitudinal studies make comparisons over an extended period of time, usually over a number of years (Kazdin, 2010). The current thesis monitors optimism and stress in student teachers over the entire period of their one-year postgraduate diploma of education (PGDE) and subsequently into their probation year of teaching. Therefore, it is suggested that the prospective time frame



justifies the current research being classified as longitudinal. Longitudinal designs have been identified as effective designs to assess changes in mental abilities over time (Bernstein, Clarke-Stewart, Roy & Wickens, 1997) because the time lapse is a required component of learning. Cognitive Behavioural Therapy (CBT) involves the teaching of skills to facilitate the manipulation of thoughts in order to produce a positive emotional and behavioural change. As with any process of learning and change, these skills will be consolidated via a learn-practise-feedback loop and may take time to fully impact on the individual's emotions and behaviours. Consequently, a longitudinal research design is desirable in order to assess changes in individual characteristics and affectivity which may arise as a result of such intervention.

An additional advantage of conducting the current research over a prolonged period of time is that it fosters the use of a repeated measures design. In order to address the current research aims, a pre-test, intervention, post-test design was employed. Through the use of a longitudinal and repeated measures design, the differential history of the group was controlled for as the same participants were used for the duration of the study. One limitation of longitudinal studies is that participants may improve over time because of what they learn during repeated testing procedures. This is known as the testing effect (Bernstein et al., 1997). This is particularly relevant for studies which assess, for example, memory based theories, in which the dependent variable may improve simply through repetition of the measurement tool. However, in the current situation, the repeated use of self-report questionnaires which assessed individual characteristics somewhat avoided this problem as the measures were not a test of knowledge and had no

correct or incorrect answers. Furthermore, in the current research the measurement tools were administered with, approximately, a six-week gap in between data collection points, which means that the recall of previous answers was unlikely.

However, participants did complete the same self-report measures of optimism and stress numerous times throughout the course of the study and, subsequently, there is the possibility that participants may have lost interest and become distracted whilst completing the measures, a problem described as participant fatigue, thus compromising the validity and reliability of the data. In order to counter this, data collection points were separated by substantial period of time, so that they do not become too regular and mundane. It is also likely that by increasing perceptions of importance of, and commitment to, the study participants were encouraged to provide reliable data. There is also the possibility that participants may have been biased in completing certain self-report measures based on their perception of the experimenter's desired outcome. This was anticipated and somewhat overcome by informing the participants that this is an exploratory study, so that they did not perceive a desired outcome one way or the other.

The issue of maintaining participant interest and commitment to a long-lasting study is also worthy of note when discussing the successful execution of longitudinal research. Over a prolonged period of time, participants may become disengaged with the research. In order to counteract this problem, participant management was a key theme throughout the current research. The longitudinal

nature of the study was explained to participants prior to the commencement of the research. Every effort was made to make the process of data collection as effortless and convenient for the participants as possible in order to prevent the study from interrupting, or adding to, other demands and pressures being placed on them throughout their PGDE course. The researcher also maintained regular contact, via email and phone, with the participants in order to remind them of data collection times and also maintain levels of motivation and commitment. The researcher also made the effort to meet with participants before their in-school placements in order to provide them with the booklets and instructions for data collection in person. The researcher also met with participants on completion of their placement in order to collect and thank the participants in person. This was done in order to show real personal investment of effort in the project, in the hope that participants would recognise and reciprocate this in their motivation.

It is suggested that the benefits of using a longitudinal research design, with repeated measures, within the current thesis outweighed the proposed limitations, such as the 'testing effect' or 'participant fatigue', either because they were not relevant to the current study or because suitable steps could be taken to counter them. Furthermore, the use of a longitudinal design in exploring the effectiveness of cognitive behavioural interventions within the teaching domain responded to a direct call for further research by Jarvis (2002) following a review of the current literature surrounding stress in teaching.

### **4.3. Field Based Research**

By conducting field-based research it is possible to obtain participant reports of perceived stress from their natural environment. This study design increases the ecological validity of the data and, subsequently, enhances the ability to generalise results to real-life outcomes (Gliner, Morgan & Leech, 2009). A limitation of using conducting field-based research is that the researcher has no way of controlling the environment and subsequent extraneous variables which could impact upon the reliability of the results. However, it is argued that in order to address the current research aim of exploring the effectiveness of a CBT-based intervention on optimism and stress in student teachers, teachers must have been subjected to the real stressors of their natural environment. This enabled a more accurate analysis of whether such interventions are effective within the teaching domain. It would not be possible to realistically recreate the stressors of teaching in a contrived experimental set-up, as schools are dynamic and un-predictable environments. Furthermore, it is suggested that the CBT skills taught in the interventions are applicable to all avenues in life and not only limited to use in the classroom. As such, the presence of extraneous stressful events served as further practice opportunities for the participants, helping them to effectively develop their use of CBT skills in stressful situations. Furthermore, obtaining the current thesis results from in a naturalistic environment, they can be more reliably generalised to the wider teacher population.

When using field-based research to enhance the ecological validity of an interventional study, Gliner et al. (2009) propose that researchers should ensure ecological validity by utilising a culturally appropriate intervener. The current research accomplished this as the primary deliverer of the CBT workshops was a qualified CBT practitioner and a sport psychologist in training with the British Psychological Society. The individual had studied Psychology for four years, up to post-graduate level, had university lecturing experience and had conducted pilot work within the same context and with a similar participant group. Furthermore, Gliner et al. (2009) suggest that the field-based research should last for an appropriate amount of time depending on the planned use of the intervention. The current research spanned the one-year PGDE course, during which time the participants underwent their initial teacher training, and progressed into the probation year in order to assess the longer term effects of the intervention. One potential way in which such interventions might be used is during periods of teacher training, so that individuals receive optimism training before entering the workplace fulltime in order to reduce perceived stress levels. As such, the current research explored the effectiveness using the same time frame as might realistically be used to teach such skills at the optimum time for equivalent groups of trainees.

#### **4.4. Ethical Considerations**

All methods employed within the current thesis were approved by the relevant Edinburgh University Ethics Committee. Permission to conduct the research, and approach the student teachers regarding participation, was gained from the

course directors of both the Postgraduate Diploma of Education (PGDE) in Physical Education (PE) at the University of Edinburgh and at Strathclyde University. Participants were given a clear briefing about the study and were made aware that they could withdraw from the study at any time without having to give an explanation why. All participants signed an informed consent form (Appendices 1 and 2).

There is an ethical limitation when conducting an intervention based research study in which one group of participants receives a potentially beneficial intervention and the other does not. In order to account for this, on completion of data collection all participants were given a complete debrief in order to explain the full objectives of the research. At this time, participants in the control group were offered the opportunity to receive the same optimism training intervention that the experimental group received.

It was also important to consider the ethics of asking participants to complete a longitudinal study for the duration of an intense 12 month professional training course, in which there are many external demands being placed on them at the same time as having to develop a new set of skills and adapt to constantly changing environments. This was counteracted by developing and delivering the intervention training course in a way which embedded it within the PGDE, making participation as convenient as possible. Additionally, participants received a clear brief regarding the study, emphasising that they could withdraw at any time, and the researcher ensured that all data collection methods were

sympathetically timed and as un-obtrusive, and easy to complete, for the participants as possible.

## Chapter 5

### Optimism Training as a means of Reducing Stress in Student Teachers

#### 5.1. Introduction

*“A pessimist sees the difficulty in every opportunity; an optimist sees the opportunity in every difficulty.” (Winston Churchill)*

Optimism refers to a “hopefulness and confidence about the future or the success of something” (Oxford English Dictionary). The difference between optimism and pessimism is commonly represented by the question of whether a person views the glass half full or half empty. Optimism has been linked to many benefits such as high perseverance (Martin-Krumm et al., 2003), lower levels of job stress (Tuten & Neidermeyer, 2004), high workplace productivity (Seligman & Schulman, 1986), and better physical health (Buchanan et al., 1999; Gardner et al., 2005; Seligman et al., 2007). A review of optimism research by Peterson (2000) highlights consistent links between optimism and positive mood, good morale, perseverance, effective problem solving, good health and successful performance in various domains including academic, athletic, military, occupational and political. In contrast pessimism has been associated with negative outcomes such as high stress and illness (Jackson et al., 2002), high job-related emotional distress (Hershberger et al., 2000) quitting in the face of adversity (Seligman & Schulman, 1986), poor physical health (Buchanan et al., 1999; Gardner et al., 2005; Seligman et al., 2007) and is widely accepted to be a



precursor to depression, passivity, failure, social estrangement, morbidity and mortality (Peterson, 2000).

Optimism is usually defined in one of two ways; Dispositional Optimism (Scheier & Carver, 1985) or Explanatory Style (Seligman, 2006; Abramson et al., 1978). Scheier & Carver (1985) define dispositional optimism as the global generalized tendency to expect that one will generally experience good versus bad outcomes in life. This pre-disposition is considered to be relatively stable across an individual's lifetime, and is therefore referred to as Dispositional Optimism. Whilst dispositional optimism relates to one's expectations in life, optimistic explanatory style is defined as the way in which people routinely attribute causes to events in their lives. Despite possible links between explanations and expectations little attention has been paid to the relationship between the constructs (Isaacowitz, 2005).

Initially the concept of explanatory style was developed to explain the mechanism through which stressful experiences, and the development of depression, are mediated by thought processes (Abramson, 1978). The mechanism was outlined in the Reformulated Learned Helplessness Theory (RLHT: Abramson et al., 1978) which proposes that explanatory style varies on three dimensions: internal/external, stable/unstable, and global/specific. The theory proposes that individuals with a pessimistic explanatory style attribute positive events in their lives to external, unstable, specific causes and bad events to internal, stable, global causes. Recently, Seligman (2006) advocated a move from a focus on pessimism and helplessness, to a focus on optimistic explanatory

styles and interventions to enhance what has become known as Learned Optimism: the attribution of good events to internal, stable, global causes and bad events to external, unstable, specific causes. One key consequence of increasing Learned Optimism that has been empirically established is in reducing the impact of stress and physical illness (Buchanan et al., 1999; Gardner et al., 2005; Seligman et al., 2007).

Stress is widely regarded as a transactional process whereby the individual perceives an imbalance between the situational demands and their personal coping resources. Lazarus & Folkman's (1984) Cognitive Appraisal Model of the stress process suggests that primary and secondary appraisal processes determine perceived stress. Primary appraisal determines whether the situation is perceived as relevant, and presents any harm, threat or challenge. Secondary appraisal assesses what can be done about the situation and whether the individual believes they have sufficient coping resources to deal with it. If an individual appraises a situation as relevant and challenging, threatening or harmful, and does not have the necessary coping resources, they will experience stress. A key component in this process is the individual's perception of themselves and the world. Consequently, individual differences such as optimism have been shown to impact on the appraisal process. David et al. (2006) proposed optimism can be viewed as a component of the secondary appraisal process after showing that the impact of coping responses on psychological distress were mediated by optimism/pessimism in 60 patients awaiting breast cancer surgery. This is in keeping with that found by Chang (1998), who concluded that stress-related

appraisals were mediated by optimism, which consequentially impacted on coping and adjustment in 726 college students.

Individuals with an optimistic explanatory style have been shown to exhibit less anxiety, more confidence, and have outperformed their pessimistic counterparts following negative feedback in sporting situations (Martin-Krumm et al., 2003). Furthermore, call centre workers with an optimistic explanatory style have been shown to experience less work-related stress (Tuten & Neidermeyer, 2004). A longitudinal study of college students has shown optimists are less likely to succumb to stress-related illness (Jackson et al., 2002). And in medical students (Hershberger et al., 2000) found those with an optimistic explanatory style experienced significantly less emotional distress over the course of a year-long residency than those with a pessimistic explanatory style. In addition to decreasing the impact of negative emotions and experiences, a longitudinal study by Seligman & Schulman (1986) has linked optimistic explanatory style to high levels of productivity and longevity among life insurance sales agents. Consequently, optimistic explanatory style appears to have a positive impact by minimising perceived stress and the subsequent negative emotions and ill-health. An interesting point of inquiry is how such a positive effect can be achieved in order to positively enhance stress tolerance and affectivity.

Without intervention, explanatory style is considered a stable variable (Burns & Seligman, 1989). However, recent research has indicated that group-based cognitive behavioural interventions reliably change the explanatory style of pessimistic individuals (Buchanan et al., 1999; Gardner et al., 2005; Seligman et

al., 2007). The Cognitive Behavioural Therapy (CBT) approach, adopted by these interventions, aims to influence non-helpful emotions, behaviours and cognitions through a goal orientated, systematic procedure. Ultimately, reducing an individual's emotional distress by helping them to identify, examine and modify the maladaptive thinking underlying their distress (Neenan & Dryden, 2005). Free (2007) identifies three types of change supposed to occur during CBT: 1) a change from negative automatic thoughts to more deliberate thinking, consistent with objective reality; 2) a change in the thinking process – consistently reducing cognitive distortions; 3) modification of more permanent cognitive structures (schemas). Techniques to achieve these changes include education about the cognitive theory model, cognitive practise of identifying and changing negative thoughts and developing new behaviours which challenge the individual to put their more positive thinking into action. Although the basic techniques are learnt within CBT sessions, between-session homework is considered to be an essential aspect of effective cognitive behavioural therapy (Neenan & Dryden, 2005) allowing participants the opportunity to apply skills learnt in workshops to real life situations. Research has shown positive correlations between the quality and quantity of homework completed and the outcomes of cognitive behavioural therapy (Rees et al., 2005).

Cognitive Behavioural Therapy has been administered successfully with groups since its establishment (Free, 2007). Whilst some may argue group therapy weakens the quality and impact, group-based CBT has been shown to enhance learned optimism and significantly reduce physical illness (Buchanan et al., 1999; Gardner et al., 2005; Seligman et al., 2007), and reduce the incidence of

anxiety and depressive symptoms and promote better well-being (Seligman, 2007). Gardner et al., (2005) assessed the effectiveness of implementing CBT within stress management group-workshops aimed at treating of work-related stress in NHS employees, and concluded cognitive therapy was an effective intervention in work-related stress.

One profession associated with a high-incidence of stress and which requires further research into stress-minimising interventions (Kyriacou, 2001; Jarvis, 2002), is teaching. Stress is a significant problem within the teaching profession and the Health and Safety Executive has targeted education as one of the top five priority sectors for tackling workplace stress (Health and Safety Executive, press release, 2005). Stress has been a major contributor to staff retention problems in both fully trained teachers (Montgomery and Rupp, 2005) and student teachers (Chambers & Roper, 2000). A combination of work stressors and personality characteristics has been attributed to teacher burnout (Kokkinos, 2007). Further research has been called for to explore individual differences in response to stressful situations, and the development of effective intervention strategies to reduce teacher stress (Kyriacou, 2001).

Interventions adopting cognitive behavioural strategies have been used in a preventative capacity to enhance optimistic explanatory style and improve ill health and depression, in those identified as being at risk of depression (Buchanan et al., 1999; Seligman et al., 2007). However, there is little research investigating the impact of CBT interventions on individuals who are not at risk of depression. Furthermore, research on explanatory styles has focused on the

impact of attributions regarding negative events (Buchanan et al., 1999, Seligman 2006). Given that explanatory styles of optimists and pessimists differ in relation to both positive and negative events, the current research aims to examine the positive impact of optimism for both types of events. It is suggested that the outcome of optimistic explanations for positive events will lead to increased confidence, which may play a significant role in mediating stress over time in a workplace environment. As such, the primary aim of the current research was to explore whether a CBT-based group intervention to develop and enhance learned optimism will increase confidence and reduce stress in student Physical Education (PE) teachers on a one-year postgraduate diploma of education (PGDE). It is hypothesised that a CBT-based optimism intervention will enhance optimistic explanatory style and reduce levels of perceived stress in student PE teachers whilst undertaking the practicum element of their PGDE.

Explanatory style stems from an individual's view of their place in the world and is habit of thought, learned throughout childhood and adolescence (Seligman, 2006). However, Abramson et al. (1978) propose the explanatory style influences general outlook and behaviour, and will therefore depict expectancies regarding the future. This not only lends support to the theory that explanatory style may reduce stress perception by moderating the appraisal process, but also suggests that explanatory style and dispositional optimism may be linked. The way in which events are explained is likely to impact on expectations regarding future events. Similarly, one's expectations/beliefs regarding their place in the world will influence their attributions. As such, the current study had a secondary aim to assess whether the CBT intervention would impact on

dispositional optimism as well as explanatory style, thus exploring a possible relationship between the two definitions of optimism.

## **5.2. Method**

### *5.2.1. Participants*

41 student PE teachers (23 male, 18 female) enrolled on postgraduate diploma in education courses at the University of Edinburgh and the University of Strathclyde volunteered to participate in the study. To prevent between-group contamination the 22 students (15 male, 7 female) from Edinburgh agreed to take part in the intervention condition, whilst 19 students from Strathclyde (8 male and 11 female) acted as the control group. Group allocation to treatment was made on a convenience basis as the researcher was based at the University of Edinburgh.

### *5.2.2. Measures*

*Explanatory Style Optimism:* The Attributional Style Questionnaire (ASQ: Peterson et al., 1982) was used to measure explanatory style (see Appendix 3). This self-report instrument produces explanatory style scores for both good and bad events along three causal dimensions: internal/external, stable/unstable and global/specific. The ASQ presents 12 hypothetical events (six positive and six negative) to which the participant states the cause and then rates it on a 7-point scale for each dimension. The instrument yields 9 scores per individual: a score

for each dimension for good and bad events, a composite score for explanatory style of good events and a composite score for bad events and, finally, a total explanatory style score computed by subtracting the composite negative from the composite positive score. Subscales of the ASQ have been shown to have respectable internal reliability, however when composites are formed they have substantially higher levels of internal consistency with alpha coefficients of 0.75 and 0.72 obtained for attributional style of good and bad events respectively (Peterson et al., 1982).

*Dispositional Optimism:* The Life Orientation Test (LOT: Scheier & Carver, 1985) was employed to assess dispositional optimism (see Appendix 5). The LOT contains 12 generalised statements: four positive, four negative and four filler items. Respondents are asked to indicate the extent to which they agree with each item (4=strongly agree to 0=strongly disagree). An overall optimism score is obtained by discarding the filler items, reversing the negatively worded items and summing the remaining 8 scores. This ultimate eight item scale exhibits an acceptable level of internal consistency with a Cronbach's alpha of 0.76 (Scheier & Carver, 1985).

*Self-Efficacy:* The Teacher's Sense of Efficacy Scale (TSES: Tschannen-Moran & Woolfolk Hoy, 2001) was used to measure participant's self-efficacy in the classroom (see Appendix 6). The TSES is a 24 item self-report instrument which yields a total self-efficacy score along with three subscales for efficacy in student teaching, instructional strategies and classroom management. Participants are presented with 24 statements relating to teacher's capabilities in the classroom,



and asked to indicate their opinion for each on a 9-point scale (1=nothing to 9=a great deal). Studies have shown the reliability of the 24-item TSES to be 0.94 when administered to pre-service teachers (Tschannen-Moran & Woolfolk Hoy, 2001).

*Stress:* Since stress is multidimensional the current study assessed three major components of stress: cognitive, affective and physical.

*Cognitive stress:* The Perceived Stress Scale (PSS: Cohen et al., 1983) was used to measure cognitive stress (see Appendix 7). This 14-item (7 positive, 7 negative) self-report measure assesses the degree to which situations are appraised as stressful and has been successfully used with college student samples (Cohen et al., 1983). Participants are asked to score, on a five-point (0 to 4) scale the extent to which they experience the stated thought or feeling within the last week. The PSS is scored by reversing the positively phrased items and then summing across all 14 items. The PSS has been shown to have adequate internal (Cronbach's alpha 0.85) and test-re-test reliability (0.85: Cohen et al., 1983).

*Affectivity:* The Positive and Negative Affect Scales (PANAS: Watson et al., 1988) was employed to measure affective stress (see Appendix 8). The PANAS consists of two 10-item mood checklists, one containing descriptors for positive affect and one for negative affect. Respondents are asked to rate on a 5-point scale (1=very slightly or not at all to 5=extremely) the extent to which they have felt each descriptor over the past week. The measure generates two scores, one

for Positive Affectivity (PA) and one for Negative Affectivity (NA). The PANAS has shown good test re-test reliability and internal consistency with alpha reliabilities all acceptably high, ranging from 0.86 to 0.90 for PA and from 0.84 to 0.87 for NA, and are unaffected by the timing instructions used (Watson et al., 1988).

*Physical stress:* A Weekly Symptom Check List (WSCL) was computed by the authors to assess physical stress (see Appendix 9). The WSCL presents 23 common symptoms of stress (such as headaches, cold symptoms, trouble sleeping), collated from medical websites and articles and checked for validity by a General Practitioner (GP). Respondents were asked to identify which of the symptoms they have experienced in the past week. Symptoms were summed to produce a total score of physical stress symptoms.

*Weekly Diary:* A short diary, presented in table form, was completed by participants at the end of each working week (see Appendix 10). Participants were asked to ‘think back over the past week and make brief notes for each day regarding what happened and how you felt’. This allowed them to highlight anything stressful they had to respond to during the week and could be related to issues inside and outside of school.

### *5.2.3. The Teacher Educator Course*

The two courses from which participants were recruited were highly similar 36-week long Postgraduate Diploma of Education (PGDE) courses consisting of

both university-based (18-weeks) and school practicum (18 weeks) components. The university element included teaching workshops and lecture based-sessions. The practicum section of the course consisted of three six-week in-school placements, during which students were required to teach physical education in a secondary school. During these placements students were always observed by supervising teaching staff at the school, and underwent one critical performance evaluation per placement, conducted jointly by university assessors and supervising teachers. This assessment used observation of a lesson and feedback from teaching staff to determine whether the student-teacher had passed that particular placement or not, based upon working towards and achieving professional benchmarks (GTCS, 2009). A fail during any placement could result in the student failing the entire course. Furthermore, students must pass the final placement in order to pass the course. Chambers & Roper (2000) identified such practical aspects of teacher educator courses as highly stressful for prospective teachers.

#### *5.2.4. The Intervention*

A classroom-based group workshop intervention was developed by the primary researcher based on cognitive behavioural therapy (CBT) techniques (Neenan & Dryden, 2005; Free, 2007) and optimistic explanatory style theory and development factors (Seligman, 2006). The intervention programme consisted of four hours of group meetings, one hour per week for four weeks, with between session homework. The workshop taught a range of cognitive behavioural techniques based on Beck's (1995) Cognitive Therapy. Topics integrated into

the workshop included (1) cognitive theory of change (identifying the relationship between thoughts, emotions and behaviour); (2) what is optimism (what constitutes, and advantages of, optimistic thinking); (3) identifying Negative Automatic Thoughts (NATS) and underlying beliefs; (4) examining and responding to NATS; (5) Replacing NATS with more constructive interpretations, beliefs and behaviours; (6) Attributing causes to events (increasing awareness of alternative, more rational, optimistic and helpful, explanations; (7) behavioural activation strategies (putting skills in practice); (8) stress management (identifying and planning for stressful situations); (9) Generalizing these coping strategies to new and relevant teaching scenarios.

Between-session homework, with subsequent debriefs, challenged participants to apply the cognitive skills learnt in the workshop in everyday life. Participants were encouraged to apply the skills in a variety of situations, not solely teaching. To assure homework was adhered to and elicited the appropriate effort, participants were informed that the homework was integral to the programme. As suggested by Neenan & Dryden (2005), the first part of each workshop was used to review homework.

The first session of the intervention had been piloted on the University of Edinburgh PGDE PD cohort of 2007/8. Focus groups were conducted 24-hours following the session in order to gather feedback from a similar target population regarding the relevance of the training programme and how they felt it could be improved. Furthermore, the entire four-workshop programme was piloted on 44 undergraduates enrolled on a Bachelor of Education (BEd) in PE at the

University of Edinburgh, as part of their sports psychology module. At this time, the workshops were observed and critiqued by an experienced accredited sport psychologist. Changes were made to the content and delivery in order to ensure high quality for the research study. All slides and handouts from each of the four workshops are presented in Appendices 12 to 25.

#### *5.2.5. Procedure*

At the beginning of the one-year PGDE course a presentation was made about the study to each cohort. At which time volunteers were recruited and informed consent gathered. Immediately prior to the first placement, participants attended a meeting in which explicit instruction was given regarding the process and timing of questionnaire completion during the placement. At this time participants completed the first ASQ, LOT and TSES. Optimism, efficacy and stress were measured before and during the first practical placement to obtain a baseline. During the placement participants were asked to complete the PSS, PANAS, WSCL every Wednesday and provide brief reflections on the week using the diary completed each Friday. The PSS, PANAS, WSCL and Diary were bound, in order of completion, to form a research booklet that the participants could take with them on placement (for booklet introduction and instructions see Appendix 11). During the placement, participants were regularly contacted each week by the researcher to increase adherence.

On return to the university-based section of the course the control group continued with the programme as normal whilst the experimental group attended

four, weekly 60 minute workshops in which the CBT based optimism intervention was delivered. Immediately prior to the second placement, all participants re-completed the ASQ, LOT and TSES, and were provided with new research booklets. The data collection procedure during the second placement mirrored exactly that of the first.

#### *5.2.6. Statistical Analysis*

Three-way mixed ANOVAs were employed to test for interaction in cognitive stress perception between group (2), placement (2) and week (6). Independent t-tests were used to check for differences between the baseline measures of each group and for differences in change scores between each group. Paired samples t-tests were used to check for within group changes from placement one to two. Pearson's  $r$  test for correlation was used to explore any relationship between explanatory style, dispositional optimism and self-confidence.

Usually the use of multiple t-tests should be avoided in order to minimise the risk of inflating the Type I error rate. Post-hoc tests can be employed to further investigate any relationships identified by an initial ANOVA. Such post-hoc tests can be run on between subject designs consisting of more than two groups. However, in designs consisting of only two groups, such as the current study, further analysis simply boils down to conducting t-tests at each time point (Howell, 2009). Furthermore, running multiple comparisons across time points, in the form of post-hoc tests, does not protect Type I error inflation from one period to another. Consequently when assessing across time points the risk of

increasing the Type I error rate is inflated just as much as if running multiple t-tests (Howell, 2009). When employing repeated measures ANOVAS, the sphericity of F is compromised. The related complications of this mean that the standard post-hoc tests are not available for repeated measures analysis (Field, 2010). Due to the mixed design of the current study, all of these facts are relevant to the statistical analysis of the current data, and subsequently it was decided that multiple t-tests would be the most effective way to further explore relationships within the data.

### **5.3. Results**

Of the 41 participants who started the study, 30 completed the data collection. The subsequent 11 participants were removed from the study due to a lack of data: participants failed to complete/hand in their placement booklet.

#### *5.3.1. CBT Training and Explanatory Style*

Table 5.1 contains the descriptive statistics for the explanatory style, negative and positive composites of both the experimental and control groups at placements one (baseline) and two.

**Table 5.1:** Mean levels of explanatory style, negative and positive composites demonstrated by both the experimental and control groups at placement one (baseline), and following the CBT-based optimism training, at placement two.

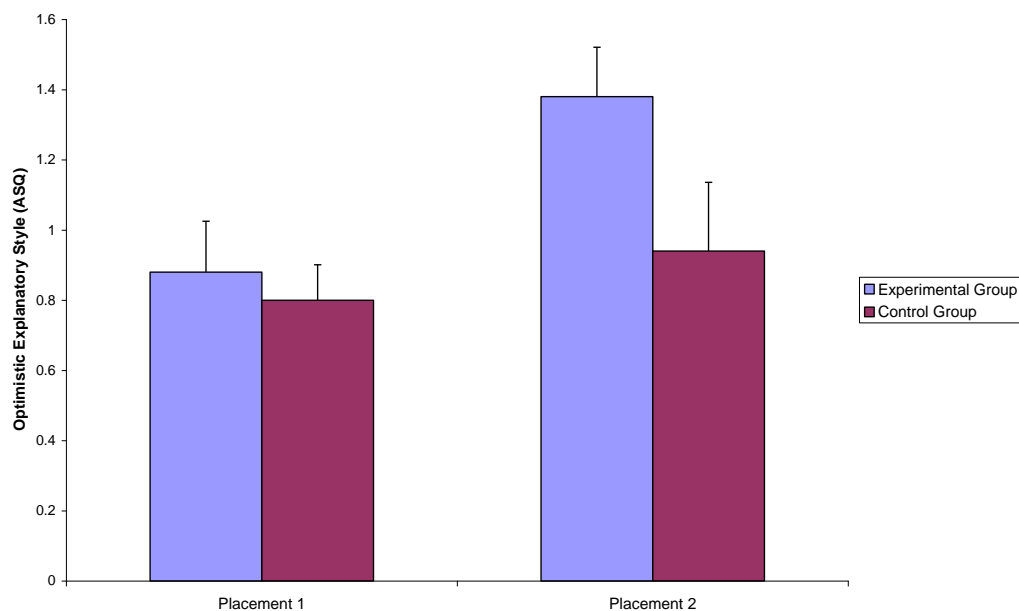
	Placement One		Placement Two	
	Experimental Group	Control Group	Experimental Group	Control Group
<b>Explanatory Style</b> (as measured by the ASQ)	0.88	0.84	1.38	0.94
<b>Negative Composite</b> (as measured by the ASQ)	4.17	4.37	3.08	4.20
<b>Positive Composite</b> (as measured by the ASQ)	5.05	5.17	5.17	5.13

An independent t-test conducted on baseline measures showed that there was no significant difference ( $t = 0.403$ ,  $df = 37$ ,  $p = 0.689$ , two-tailed) in Explanatory Style as measured by the Attributional Style Questionnaire (ASQ: Peterson et al., 1982) between the experimental and control group at the beginning of the study. Explanatory Style change scores were calculated for each participant by subtracting their baseline explanatory style score, measured prior to placement one, from their post-intervention score, measured prior to the commencement of placement two. An independent t-test was conducted to identify any significance in change scores between the experimental and control groups. Results show that the experimental group showed a larger increase in explanatory style than the control group ( $t = 1.179$ ,  $df = 37$ ,  $p = 0.247$ ).

Further analysis was conducted in the form of paired-samples t-tests completed for each group to assess change in explanatory style from placement one to two.



Results showed that following the four-week, group-based CBT intervention, the experimental group significantly increased in explanatory style ( $t = 2.818$ ,  $df = 20$ ,  $p < 0.005$ ). The control group, who received no CBT training between also showed an increase in explanatory style, however, this was not significant ( $t = 0.479$ ,  $df = 11$ ,  $p = 0.641$ ). These changes in explanatory style can be seen in Figure 5.1.



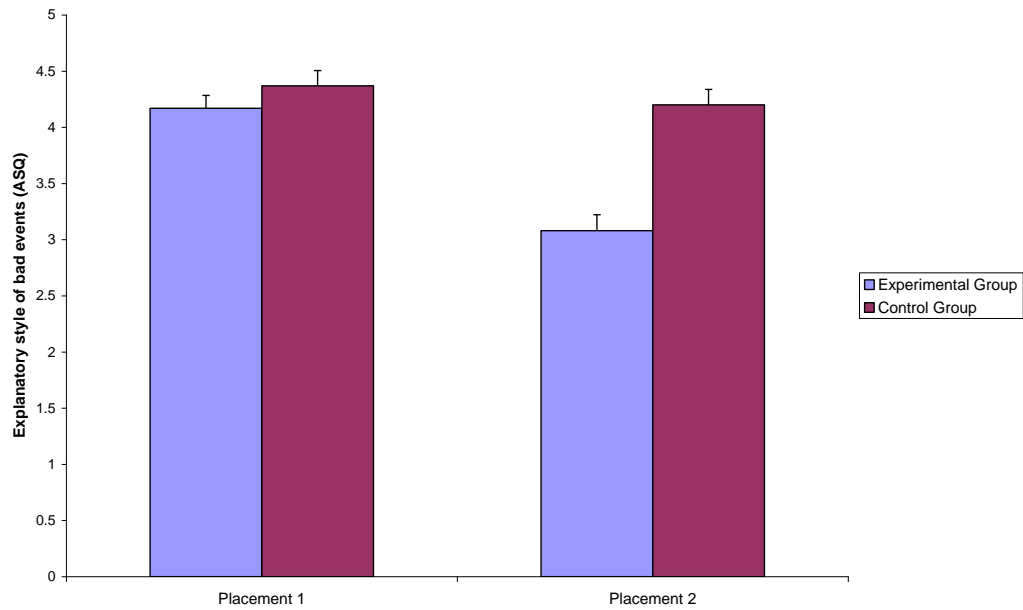
**Figure 5.1:** Mean level of optimistic explanatory style portrayed by both the experimental ( $n=21$ ) and control group ( $n=9$ ) at placement one (baseline) and following the CBT-based optimism training, delivered only to the experimental group during the university-based part of the course, at placement 2.

### 5.3.2. CBT-based Optimism Training and Positive and Negative Composites

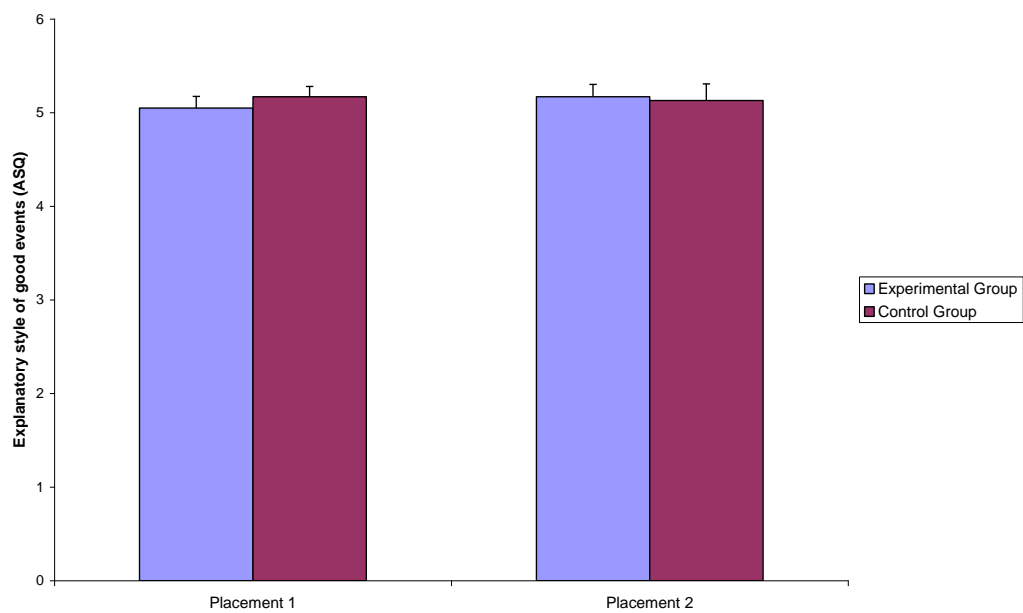
Further analysis was conducted to explore changes in the two primary sub-components of the ASQ (Peterson et al., 1982); Positive Composite (PC) which refers to an individual's optimistic explanation of good events and Negative

Composite (NC) which refers to the pessimistic explanation of bad events. The mean levels of PC and NC portrayed by both the experimental and control groups at placement one and two can be seen in Table 5.1. An independent t-test was conducted to test for differences at baseline level. There was no significant difference between the experimental and control groups level of PC or NC at the baseline. Mirroring the analysis conducted on the total explanatory style scores, an independent t-test was carried out to assess any differences between mean changes scores for each group. Results showed no significant difference between the average change scores of each group ( $t = 1.179$ ,  $df = 31$ ,  $p = .247$ ).

However, paired-samples t-tests reported that the experimental group decreased significantly in their Negative Composite score following the four-week CBT-based optimism intervention ( $t = 2.407$ ,  $df = 20$ ,  $p = 0.026$ ). In conjunction with this, they also showed a slight increase in their average composite positive score following the intervention, however this was not significant ( $t = 1.070$ ,  $df = 20$ ,  $p = .297$ ). These changes are shown below in Figures 5.2 and 5.3. The control group showed no significant changes in either their average composite positive or composite negative scores, as can be seen from Figures 5.2 and 5.3, their composite scores remained relatively stable.



**Figure 5.2:** Mean levels of pessimistic explanatory style relating to bad events (negative composite) reported by the experimental ( $n=21$ ) and control ( $n=9$ ) groups at placement one (baseline) and, following the CBT-based optimism intervention (delivered to experimental group only during the university-based part of the PGDE), at placement two.



**Figure 5.3:** Mean levels of the optimistic explanatory style of good events (positive composite) reported by the experimental ( $n=21$ ) and control ( $n=9$ ) groups at placement one (baseline) and, following the CBT-based optimism intervention (delivered to experimental group only during the university-base part of the PGDE), at placement two.

### *5.3.3. CBT Training and Stress*

In order to gain a more holistic view of how a CBT-based optimism intervention would impact on student teacher's stress levels under pressure situations, cognitive, affective and physical stress were monitored weekly throughout two, six-week in-school teaching placements. However, due to the structure of the teaching placement, and in particular the timing of the external teaching assessment conducted, the researcher can only be sure that all participants were subjected to stressful situations during the first three weeks of each placement. After this point some participants had confirmation that they had passed their observed assessment of teaching benchmarks (and therefore their placement) and a noticeable decrease in stress was shown subsequent to the assessment. However, at this point others were still awaiting their assessment and were consequently exhibiting higher levels of stress creating a movement in the data, within groups in different directions. In order to ensure that results reflect the impact of the CBT-based intervention on stressful situations only data collected during the first three weeks of each study was used in the analysis from this point onwards.

### *5.3.4. CBT Training and Cognitive Stress*

Due to the nature of conducting research with real-life populations in naturalistic settings it was not possible to ensure that the experimental and control group were of equivalent levels of cognitive stress at baseline level. Therefore an independent t-test was conducted to highlight any differences prior to the

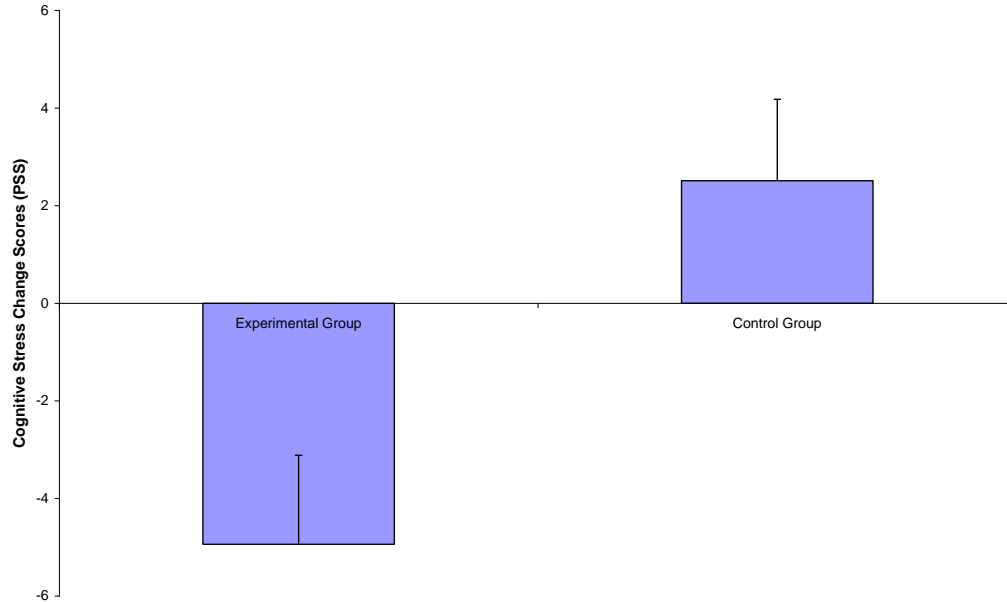
commencement of the intervention. Results show that the control group exhibited significantly more stress at baseline level (placement one) than the experimental group ( $t = 2.658$ ,  $df = 37$ ,  $p = 0.012$ ). The mean levels of cognitive stress, negative and positive affectivity, and physical stress symptoms can be seen below in Table 5.2.

**Table 5.2:** *The mean levels of cognitive stress, positive affectivity, negative affectivity and physical stress symptoms portrayed by both the experimental and control groups during placement one (baseline) and, following the CBT-based optimism training, at placement two.*

	Placement One		Placement Two	
	Experimental Group	Control Group	Experimental Group	Control Group
<b>Cognitive Stress</b> (as measured by the PSS)	19.86	24.53	19.67	26.88
<b>Positive Affectivity</b> (as measured by the PANAS)	36.88	37.20	34.60	29.88
<b>Negative Affectivity</b> (as measured by the PANAS)	17.46	19.05	16.13	19.6
<b>Physical Stress Symptoms</b> (as measured by a WSCL)	2.3	1.8	1.7	2

To assess the impact of the four-week CBT-based optimism intervention, cognitive stress change scores were computed for each group and an independent t-test was conducted on these scores. Results show that, despite the differing baseline levels, the control group's level of cognitive stress increased

significantly more than the experimental group's during the second placement ( $t = 2.930, df = 37, p = 0.006$ ). These changes scores can be seen in Figure 5.4.



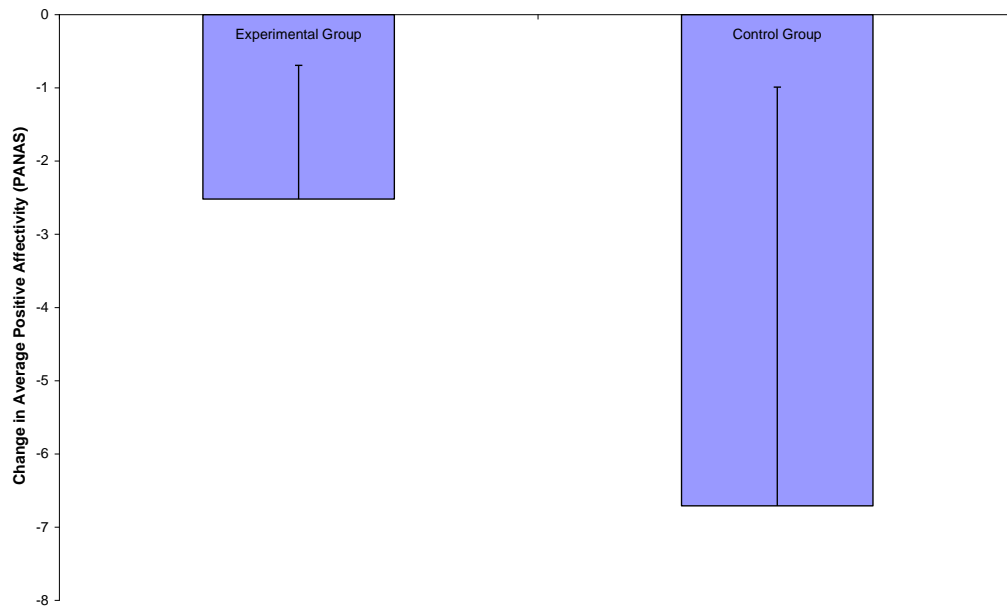
**Figure 5.4:** Average changes in cognitive stress, from baseline to post-intervention, portrayed by both the experimental group ( $n=21$ ) and control group ( $n=9$ ), whilst on placement, following a four-week CBT-based optimism intervention delivered only to the experimental group during the university-based element of the PGDE.

A three-way mixed ANOVA (group x placement x week) reported a significant interaction between the amount of cognitive stress exhibited weekly over both placements, by each group ( $F_{(2,40)} = 3.307, p = 0.047$ ). The main effect of group was also significant ( $F_{(2,40)} = 4.812, p = 0.013$ ).

### 5.3.5. CBT Training and Positive Affectivity

An independent t-test reported no significant difference in the baseline levels of positive affectivity exhibited by each group. The mean levels of positive affectivity reported by both the experimental and control groups during placement one and two can be seen in Table 5.2. During placement two, both

groups reported lower incidence of positive affectivity (see Figure 5.5), an independent t-test was conducted using the change scores but reported no significant difference between the changes in positive affectivity exhibited by each group.

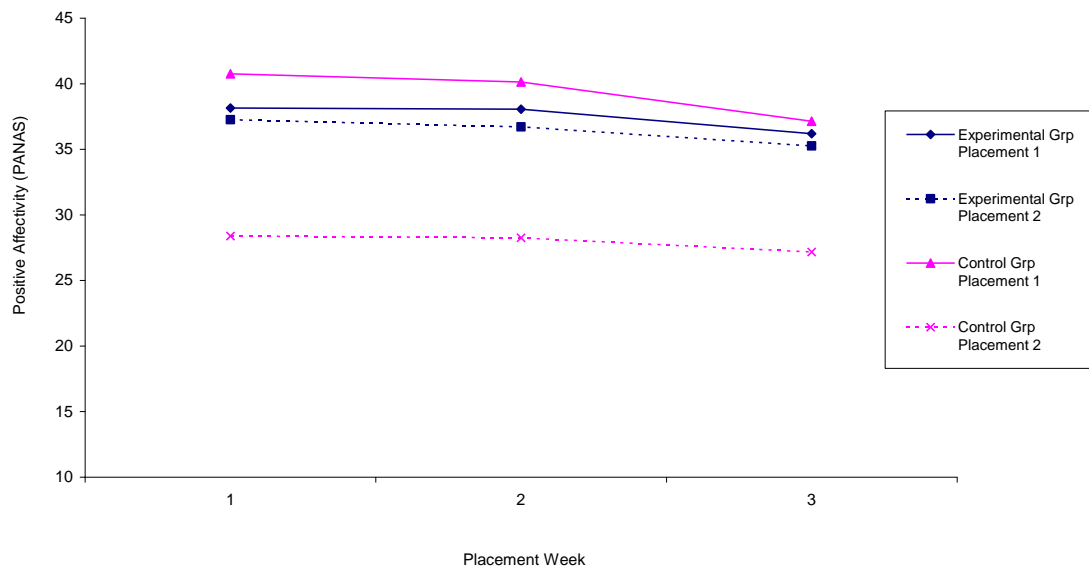


**Figure 5.5:** Average changes in positive affectivity displayed by the experimental group ( $n=21$ ) and control group ( $n=9$ ) following a four-week CBT-based optimism intervention.

The graphical presentation of data in Figure 5.5 shows that the drop in positive affectivity was greater for the control group than the experimental group, who received four weeks of optimism training. In order to explore this further, paired samples t-tests were conducted for each group in order to test for significance. For the experimental group, who received the optimism training programme between placement one and two, this drop was only slight, and not significant. However the control group displayed a significant drop in positive affectivity during placement two ( $t = 7.338$ ,  $df = 5$ ,  $p = 0.01$ ). The independent t-test highlighted that the control group reported significantly lower levels of negative

affectivity at placement two than the experimental group ( $t = 6.027$ ,  $df = 10$ ,  $p = 0.000$ ).

Further analysis was conducted to examine the levels of positive affectivity reported by each group during the first three weeks of the two teaching placements. Independent t-tests highlighted no significant differences in the amount of positive affectivity reported by each group during placement one. However during placement two, following the optimism training, the experimental group displayed significantly higher levels of positive affectivity at weeks one ( $t = 4.067$ ,  $df = 26$ ,  $p = 0.00$ ), two ( $t = 3.611$ ,  $df = 26$ ,  $p = 0.001$ ) and three ( $t = 2.501$ ,  $df = 20$ ,  $p = 0.021$ ) than the control group. The weekly changes in positive affectivity can be seen below in Figure 5.6.

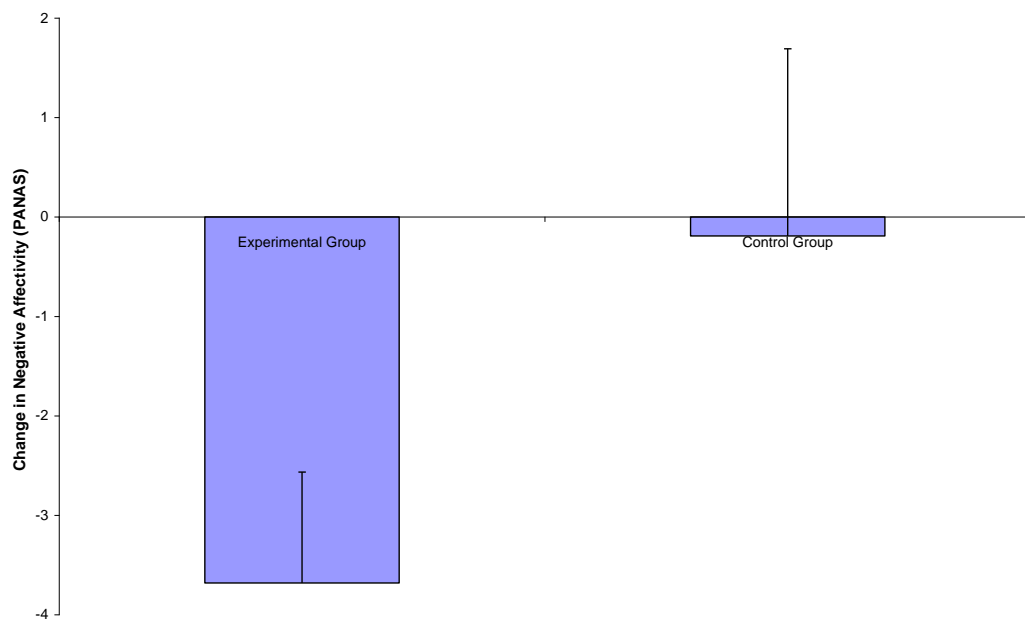


**Figure 5.6:** Positive affectivity exhibited during the first three weeks of teaching placement one and, following a four-week CBT-based optimism intervention, during placement two, for both the experimental ( $n=21$ ) and control ( $n=9$ ) groups.



### 5.3.6. CBT Training and Negative Affectivity

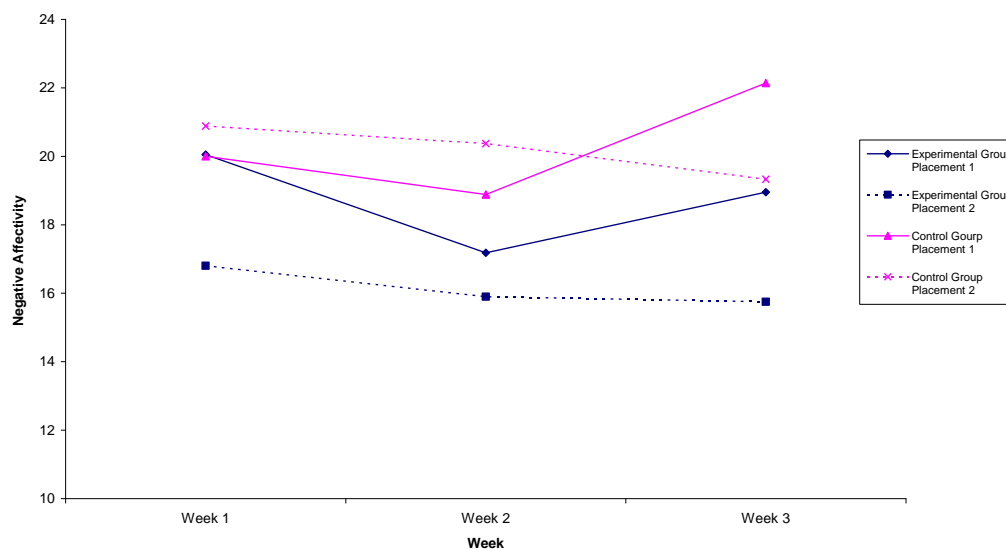
An independent t-test reported no significant difference in the baseline levels of negative affectivity exhibited by each group. As can be seen in Figure 5.7, the experimental group, who received the CBT-based optimism training, demonstrated a higher drop in negative affectivity than the control group, who received no optimism training. However, an independent t-test reported no significant difference between these changes scores. Mean levels of negative affectivity can be seen in Table 5.2.



**Figure 5.7:** Average changes in negative affectivity displayed by both the experimental ( $n=21$ ) and control ( $n=9$ ) groups following a four-week CBT-based cognitive intervention delivered only to the experimental group.

Further analysis was conducted to examine the levels of negative affectivity reported by each group during the first three weeks of each placement (see

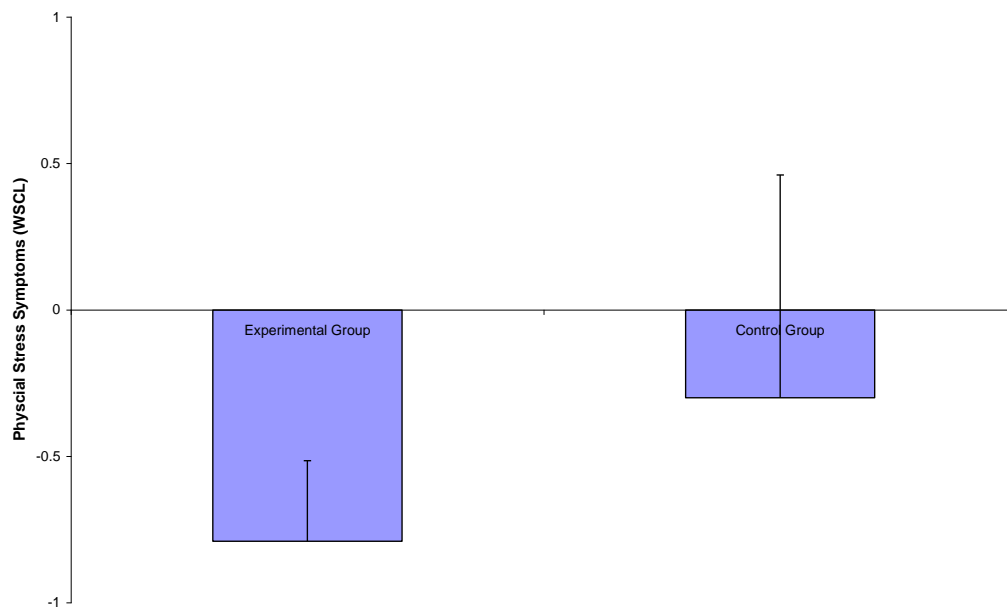
Figure 5.8). Independent t-tests highlighted no significant differences during placement one. Following the optimism training, the experimental group displayed lower levels of negative affectivity at weeks one ( $t = 1.730$ ,  $df = 26$ ,  $p = 0.095$ ) and two ( $t = 1.807$ ,  $df = 26$ ,  $p = 0.082$ ) which were only just fell outside the required significant value of  $p < 0.05$ .



**Figure 5.8:** Changes in negative affectivity over the first three weeks of teaching placement one and, following a four-week CBT-based optimism intervention, placement two for both the experimental ( $n=21$ ) and control ( $n=9$ ) groups.

### 5.3.7. CBT Training and Physical Stress

Physical stress was assessed throughout the two teaching placements using a weekly symptom checklist. An independent t-test reported no significant difference in the incidence of physical stress symptoms between the two groups at baseline level. Furthermore, as can be seen in Figure 5.9, there was very little difference in the physical stress symptom change scores for each group. An independent t-test confirmed that this was not significant.



**Figure 5.9:** Changes in physical stress symptoms following a four-week CBT-based optimism intervention, for both the experimental ( $n=21$ ) and control ( $n=9$ ) groups.

#### 5.3.8. Explanatory Style, Dispositional Optimism and Self-Confidence

A sub-aim of the current study was to explore the potential relationship between explanatory style, dispositional optimism and self-confidence. A Pearson's  $r$  test was conducted to identify any relationships present between the two optimism constructs. Results show that there was a positive relationship between explanatory style and dispositional optimism prior to, and following, the optimism training intervention, however these were not significant. During placement one no relationship was present between explanatory style and self-confidence, at placement two, a positive correlation was reported, however it was not significant. In order to assess the impact of the training programme, paired-samples  $t$ -tests were carried out on the experimental group's data to identify any changes in each construct over the two measurement times. Results show that

whilst explanatory style significantly increased in the experimental group following the intervention ( $t = 2.818$ ,  $df = 20$ ,  $p = 0.011$ ), there was no significant increase in either dispositional optimism or self-confidence.

#### **5.4. Discussion**

It was hypothesised that a group-based Cognitive Behavioural Training (CBT) intervention would enhance explanatory style and be associated with a reduction in stress experienced by student Physical Education (PE) teachers on a one-year postgraduate diploma of education course (PGDE). In line with this hypothesis, the results suggest that the CBT intervention did enhance student teachers levels of optimistic explanatory style and had a direct impact on reducing the amount of cognitive stress, as measured by the Perceived Stress Scale (PSS: Cohen et al., 1983), and emotional stress, assessed by the Positive and Negative Affect Scales (Watson et al., 1988), during a six-week in-school placement. It was also hypothesised that the optimism intervention would increase self-confidence; however no association was found between learned optimism and self-confidence. A secondary aim of the current study was to explore the potential relationship between explanatory style and dispositional optimism. The results suggest there was no relationship between the two variables at either placement one or, following the intervention, at placement two.

#### *5.4.1. CBT-Based Learned Optimism Intervention and Explanatory Style*

The results indicate that the four-week, group-based CBT intervention successfully increased optimistic explanatory style, or learned optimism (as measured by the Attributional Style Questionnaire [ASQ; Peterson et al., 1982]), in student PE teachers. These findings support previous studies that have shown explanatory style can be successfully manipulated through cognitive behavioural training (Buchanan et al., 1999; Seligman et al., 2007). However, the current study differs to previous studies in the characteristics of its participants. Unlike previous studies such as Buchanan et al. (1999) and Seligman et al. (2007), the current research did not pre-select participants based on their pessimistic explanatory style, and subsequent susceptibility to develop depression, and therefore extends the work done by previous researchers. Previous studies have investigated the efficacy of CBT-based learned optimism intervention within populations pre-selected due to their extremely high pessimistic explanatory style and subsequent pre-disposition to develop depression (Buchanan et al., 1999; Seligman et al., 2007). Consequently, such interventions have been used as a preventative measure, attempting to increase explanatory style in individuals, with a large capacity for improvement, so that they will not develop depression. These studies, whilst focusing on this specific sub-population, have not considered the potential to use such interventions to increase learned optimism in an attempt to enhance the positive benefits associated with an optimistic explanatory style.

The current study showed a CBT-based intervention could enhance learned optimism in participants regardless of their initial explanatory style. This adds to existing positive psychology literature by directly addressing Seligman & Csikzentmihalyi's (2000) call for psychology to focus on the study of enhancing positive attributes, such as strength and virtue, opposed to merely addressing psychological deficits. Furthermore, by not using a specific sub-population, the current study provides results which suggest that CBT-based optimism interventions may benefit a broader population than suggested by previous research by Buchanan et al. (1999) and Seligman et al. (2005).

Due to the naturalistic nature of the study it was impossible to ensure that baseline explanatory style was the same for both groups, representing a significant potential threat to between group analysis and comparison. However, results indicated that there was no significant difference between the average levels of explanatory style measured in each group at the beginning of the study. Following the intervention the experimental group reported a significantly higher level of learned optimism than at baseline, whilst the control group showed no significant change, suggesting the intervention was successful. Although the control group did show a slight increase in learned optimism, this was not significant and may indicate the possibility that some explanatory style skills are learnt through the natural challenges met during progression through the PGDE course and, specifically, from gaining experience from teaching in schools. This is not surprising given that the one-year PGDE course is a highly intensive period of developing professional competence.

Analysis involving the sub-components of the Attributional Style Questionnaire (ASQ: Peterson et al, 1982) suggests that the CBT intervention enhanced individuals' explanatory style by significantly reducing their pessimistic explanation of bad events. Optimistic explanations for good events did increase following the four-week intervention, but this increase was not as large as the drop in pessimistic explanatory style of bad events. Contrary to this the control group, who received no training, showed no change in pessimistic explanatory style of bad events or their optimistic explanatory style of good events.

#### *5.4.2. CBT-Based Learned Optimism Intervention and Stress*

The current findings suggest that developing optimistic explanatory style by teaching participants to control their thoughts in order to attribute good events to stable, internal, global factors and negative events to unstable, external, specific factors significantly reduces the amount of cognitive stress experienced by student teachers in a demanding work environment. Cognitive stress, as measured by the PSS (Cohen et al., 1983), was significantly lower for the experimental group following the learned optimism intervention, whilst the control group actually reported an increase in stress between the equivalent two placements. This finding is consistent with evidence regarding the effectiveness of CBT-based training in other domains (Gardner et al., 2005); and can be explained through the nature of CBT training itself which aims to increase awareness of, and ability to alter, cognitive processes.

In the current study participants were taught to recognise and adopt optimistic thoughts; replacing negative thoughts where necessary. Participants were provided with knowledge about optimistic explanations and how to apply these to everyday life situations in order to enhance optimistic explanatory style and outlook. It is suggested that such CBT-based optimism training may have impacted upon participants' perception of cognitive stress through an interaction with their appraisal processes (Lazarus & Folkman, 1984). Participants who implemented thought control skills regularly would have an increased optimistic explanatory style, fostering a sense of being in control and being able to meet the demands of the environment. In turn this would have influenced both the primary and secondary aspects of the appraisal process. During primary appraisal potential stressors may have been regarded as posing a challenge rather than a threat, loss or harm. An optimistic secondary appraisal of a potential stressor may have resulted in the conclusion that it could be dealt with effectively based on previous successful experiences. As a result of an optimistic appraisal, individuals would have perceived adverse situations as challenging but not stressful.

The reduction in cognitive stress displayed by the experimental group, occurred with a corresponding decrease in negative affectivity (measured by the PANAS, Watson et al, 1988) following the four-week learned optimism intervention. The groups did not differ significantly in negative affectivity during placement one (baseline). During placement two, however, the experimental group displayed a significantly lower incidence of negative affectivity than the control group at weeks one, two and just outside a significance value for week three of placement



two. These findings suggest that the four-week CBT-based learned optimism intervention had a positive impact on emotions by reducing the incidence of negative emotions experienced whilst on placement. These findings provide support for Lazarus' (1999) stipulation that the study of stress is symbiotic with the field of emotion. According to Lazarus (1999) the outcome of the appraisal process will generate an emotional response within the individual. When situations are appraised as posing harm, threat or loss, the individual will experience negative emotions. If, as discussed above, the current CBT-based optimism intervention impacted upon the appraisal process resulting in adverse situations being appraised as challenging rather than posing threat, harm or loss, it is reasonable that there would be fewer negative emotions generated as a result.

The current results also provide support for the suggestion made in Chapter 2, that the cyclic nature of the transactional model of stress (Lazarus & Folkman, 1984) is reflected in cognitive therapy theory and practice. These results provide support for Beck's (1995) cognitive therapy model which also proposes that an individual's emotional reactions are determined by their perception of events. The reduction in negative affectivity displayed by the experimental group in the current study suggests that the intervention was effective in enabling participants to identify negative thoughts and replace them with optimistic ones in order to reduce stress and, consequently, prevent the subsequent generation of negative emotions. This process of identifying negative thoughts, stopping and replacing them would provide an explanation for the lower incidence of negative affectivity in the experimental group following the intervention.

The first part of the CBT based learned optimism training intervention involved teaching participants to identify negative thoughts and stop them. The second part entailed developing participants' ability to generate more optimistic explanation for the event, through processes such as rationalisation and examining the evidence, and adopting that belief instead. According to the cognitive therapy model (Beck, 1995), the outcome of this process will be that negative emotions are replaced by positive ones. As such, an increase in positive affectivity may have been expected. However, results in the current study show that both groups showed a decrease in positive affectivity. Despite both groups decreasing in positive affectivity, it should be noted that the control group, who received no optimism training, showed a significant drop in positive affectivity from placement one to placement two while the experimental group only showed a small, non-significant, drop (see figure 5.6). Following the optimism training, the experimental group showed a significantly higher incidence of positive affectivity than the control group during the first three weeks of the second placement. These results pose two interesting areas for discussion: firstly, the lack of increase in positive affectivity following optimism training and secondly, the possibility that, despite not increasing positive affectivity, the intervention still had a positive impact by minimising the normal decrease seen in the control group. Each of these will be discussed further below.

As mentioned above, a decrease in cognitive stress and negative emotions should have been accompanied by an increase in positive emotions, as individual's stopped negative thoughts and replaced them with positive ones. Participants in the current experimental group showed a decrease in cognitive stress and

negative emotions, but no increase in positive emotions. There could be several explanations for this. Firstly, thought control is a skill which needs to be developed through regular practice in order to become effective. As such, it could be assumed that during the second practical placement, participants may have been still developing the cognitive-behavioural skills taught in the intervention. Because automatic thoughts, derived from the existing explanatory style, would be so engrained, developing and believing new positive thoughts could be expected to be a long process. Secondly, participants may have experienced some doubt, or uncertainty, either in the effectiveness of the new explanatory style, or in their ability to implement it when required; especially when this is most often needed in uncomfortable and stressful situations. This could effect motivation to employ such skills in everyday teaching. Finally, it is common within cognitive-behaviour therapy practice for participants to be reluctant to immediately commit to their 'new' positive thoughts (Neenan & Dryden, 2004). Although individuals may be able to recognise optimistic thoughts and attempt to adopt a more optimistic explanatory style, an underlying negative core belief may make them reluctant to believe in the new thought completely. Consequently, although they are employing the positive thought, it may not be accompanied by a strong positive emotion.

The second, interesting discussion point raised by the positive affectivity results is the significant difference in the reduction of positive affectivity. As mentioned above, both groups displayed a decrease in positive affectivity from placement one to two. This may be explained by looking at the nature of the PGDE PE course itself. The 36 week long course is notoriously difficult (Chambers &

Roper, 2000) and demands a lot from its students. During this time they are constantly assessed and placed in new, and demanding, environments. Throughout this, students are expected to show an increase in teaching ability from one placement to another. Consequently, teaching placements are associated with high stress and negative emotions. As such, it is unsurprising that participants would report a general decrease in positive affectivity as the course progressed. What is interesting in this case is that the control group showed a significant drop in positive affectivity from placement one to two, whilst the experimental group's drop was only slight. In fact, during placement two the experimental group displayed a significantly higher incidence of positive affectivity than the control group at weeks one, two and three of the placement. This would suggest that the four-week CBT-based learned optimism intervention did have a positive effect in ameliorating the natural drop in positive affectivity.

The only manifestation of stress, measured within the current study, which did not show a change were physical symptoms of stress. Results show no significant change in physical stress symptoms in either group and no significant difference between the two groups at placement one or two. This was unexpected as previous studies have focused on, and emphasised, the ability of such CBT-based optimism interventions to reduce physical illness (Buchanan et al., 1999; Seligman et al., 2007). It is suggested that the current results may be a reflection on the population sample used within the current study. Physical education students tend to have high levels of physical fitness and undertake regular physical exercise through sport participation as part of, and outside, their course. Associated with this, students are also aware of the importance of good

nutrition and hydration which may also generally benefit immune function. These factors are likely to provide health benefits and make this young, fit population relatively low on physical illness. It is also suggested that physical symptoms may have been more prevalent, and therefore susceptible to change, in the populations utilised by Buchanan et al. (1999) and Seligman et al. (2007) who were pre-disposed to develop depression and may have had lower levels of health and fitness.

A second explanation of why there may have been no significant change in physical stress symptoms following the CBT-based optimism intervention may have been due to the method of assessment used. A weekly symptom checklist, presenting 23 common symptoms of stress, was devised and checked for validity by a GP. Whilst the method of weekly symptom checklists has been used in similar previous studies (Buchanan et al., 1999; Seligman et al., 2007), these have been for general physical illness. The current study was specifically interested in measuring physical stress. As the checklist was not piloted beforehand there is the possibility that it may not have been reliable to measure physical stress symptoms. Alternatively it maybe that measuring physical stress symptoms alone is not as effective as measuring overall physical illness.

In summary the results show CBT-based learned optimism was followed by a significant reduction in both cognitive stress and negative affectivity and an ameliorative effect on positive affectivity. This lends support to the concept that CBT-based learned optimism interventions can be delivered to populations in an attempt to maximise the benefits associated with positive attributes such as

learned optimism and, subsequently, create a “buffer” to stressful situations. Furthermore, the current results suggest that such interventions are as effective and beneficial for populations not pre-disposed to develop depression as similar interventions have been previously when delivered to ‘at-risk’ populations.

#### *5.4.3. Explanatory Style, Dispositional Optimism and Self-Confidence*

A secondary aim of the current study was to explore the potential relationship between the two primary optimism constructs: explanatory style (Seligman 2006; Abramson et al., 1978), which focuses on explanations, and dispositional optimism (Scheier & Carver, 1985), which focuses on expectations. The aim was to explore any potential relationship between the two and to assess whether the intervention would have any impact upon self-reported dispositional optimism. Results reported a positive, but non-significant relationship between explanatory style (as measured by the ASQ: Peterson et al., 1982) and dispositional optimism (as measured by the LOT: Scheier & Carver, 1985) prior to placement one and, post-intervention, prior to placement two. These findings correspond with the findings of Tomakowsky et al. (2001) who found no significant relationship between explanatory style and dispositional optimism and concluded that the two optimism models tap into two different aspects of a global optimism construct.

It is suggested that the lack of significance may, in part, be due to small samples sizes. This positive association lends some support to the view that regular explanations of events will impact on expectations about similar events in the

future. However, results also show that whilst the experimental group showed a significant increase in explanatory style following the four-week CBT-based learned optimism intervention, they showed no change in dispositional optimism. On the surface, this may suggest that an intervention designed to act upon explanatory style does not influence expectancy (dispositional optimism). However, it could also be the case that dispositional optimism, being a dispositional characteristic may take longer to show a change. Despite Scheier & Carver's (1985) stipulation that dispositional optimism is a stable personality characteristic, it is suggested that continuously adopting a more optimistic explanation of events, through the successful modification of thought processes, will have a subsequent, if not immediate, effect on dispositional outlook. As such it is suggested that further research is required to study the relationship between changes in explanatory style and dispositional optimism over a longitudinal period of time.

#### *5.4.4. Limitations*

The field-based nature of the current research enabled the effectiveness of the learned optimism intervention to be assessed on individuals undergoing intense professional training, in a naturalistic occupational environment that contained day-to-day genuine and personally relevant stressors. However, conducting the research on real-life populations meant the sample size of each group were limited based on course admissions. Furthermore, the naturalistic setting meant geographical dispersion of participants and the longitudinal nature, and intensity, of data collection required meant that there was a large drop out rate (26%). The

majority of the drop out was experienced within the control group; 10 of the original 19 participants did not complete the study. The potential withdrawal of participants was identified prior to the study commencement and preventative measures were put in place by ensuring regular communication with participants during the placements, via email and phone, to remind and encourage them to complete their placement booklet each week. As such, it is probable that whilst part of the drop off occurred due to the intensity of data collection during an already stressful time, part of it was also due to the control group having less personal contact with the researcher between placements, whereas the experimental group saw the researcher each week for their intervention workshops. Subsequently the experimental group may have had more reason to commit to the programme, and therefore complete data collection for the study.

#### *5.4.5. Implications*

A major strength of the current study is that it consisted of a longitudinal intervention conducted in a naturalistic environment that is not only known to be stressful, but which was also of genuine importance to the population sample. As such, the findings not only have important theoretical implications, but also practical implications, for three main areas: stress reduction techniques in student teaching, using CBT-based learned optimism interventions with populations who are not at risk of developing depression, and finally the simultaneous study of both optimism constructs. Firstly, the current results show that enhancing learned optimism in student teachers is associated with a decrease in stress during the placement elements of their PGDE programme. This has both theoretical and practical implications for the use of CBT-based skills within the



development of student teachers. These findings would appear to support the potential implementation of CBT-based learned optimism workshops as part of a professional skills module within PGDE courses in an attempt to 'buffer' students against the negative impact of stress associated with the teaching vocation (Chambers & Roper, 2000). It is suggested that further research, specifically focussed on exploring the strength of the causative element within the optimism-stress relationship, is required. This may be achieved by employing a dose-response design (Hill, 1965) in future CBT-based intervention studies. Further research is also required in order to gather information on the perceived effectiveness of this CBT-based optimism intervention from participants and the perceived applicability of the thought-control skills to the practical task of teaching.

Secondly, this study raises implications, for the first time, regarding the use of CBT-based learned optimism skills within populations who are not at risk of depression. The majority of prior research investigating the effectiveness of CBT-based learned optimism interventions has been conducted on population samples identified as being at risk of developing depression (Buchanan et al., 1999; Seligman et al., 2007). Consequently, results of this earlier work suggest using CBT skills to increase optimistic explanatory style was a highly effective method in reducing the onset of depression and improving physical health. The current research adds to current psychology literature by demonstrating that delivering such skills to individuals, regardless of their explanatory style and potential susceptibility to develop depression, created a buffer to the stresses of professional training. As such, it is suggested that future research consider the

use of such skills as a means of enhancing positive characteristics, such as optimism which is associated with better health (Buchanan et al., 1998; Gardner et al., 2005; Seligman, 2007), less job stress (Tuten & Neidermeyer 2004) and higher productivity (Seligman & Schulman, 1986), in all individuals, regardless of their explanatory style, opposed to focusing such interventions on merely replenishing the deficit of such attributes in individuals with a low explanatory style.

Finally, the current study has implications for future optimism based research. It is suggested that further research is needed to clarify the potential relationship between the two types of optimism in an attempt to fully understand the construct and how it may benefit an individual. Over time, frequent adoption of an optimistic explanatory style would seem likely to influence self-reported dispositional perceptions when these are reported in response to the question ‘what would you normally do?’

#### *5.4.6. Conclusion*

In conclusion the current study demonstrates that focusing on positive attributes and enhancing learned optimism is associated with lower perceived stress levels in student teachers during placement in secondary schools. This has potential importance for professional training, specifically for the incorporation and design of professional skills modules on PGDE courses. Such training courses could buffer student teachers against stress resulting in fewer days leave due to stress, payouts and even withdrawals from the profession. Further research is required

to fully explore the potential extent of CBT-based learned optimism training as a means of producing optimistic teachers with a higher stress tolerance.

## Chapter 6

### **Examining the Impact of Learned Optimism Training in Student Teachers through a Dose Response Design**

#### **6.1. Introduction**

##### *6.1.1. Learned Optimism Intervention and Student Teacher Stress*

Learned optimism has been linked to many benefits including better physical health (Buchanan et al., 1999; Gardner et al., 2005; Seligman et al., 2007), higher work place productivity (Seligman & Schulman, 1986), high perseverance in the face of adversity (Martin-Krumm et al., 2003) and lower levels of job stress (Tuten & Neidermeyer, 2004). The term learned optimism refers to an individual's explanatory style, defined as the way in which an individual attributes cause to the events in their life (Ambramson et al., 1978; Seligman et al., 2007). The term derives from the view that attributional styles, and therefore an optimistic explanatory style, can be learnt. This is supported by research which has shown that learned optimism can be successfully enhanced via the use of cognitive behavioural therapy (CBT) based interventions (Buchanan et al., 1999; Gardner et al., 2005; Seligman et al., 2007). An optimistic explanatory style has been linked to lower levels of job distress in residential medical students (Hershberger et al., 2000), lower incidence of stress related illness among college students (Jackson et al., 2002) and lower levels of perceived stress in student teachers undertaking the practicum element of a one-year subject

specific postgraduate diploma of education (PGDE) (Bryant, 2005, unpublished MSc thesis).

The incidence of teacher stress is well documented in both the media (Hill, 2008) and academic research (Kyriacou, 2001; Montgomery & Rupp, 2005). It has been identified as one of the primary causes of difficulty in retaining fully trained teachers (Montgomery & Rupp, 2005) and student teachers on one-year subject-specific post-graduate courses (Chambers & Roper, 2000). A comprehensive review of the existing research into teacher stress by Kyriacou in 2001 concluded that there were five directions which future research should focus on. One of these five was to develop and assess the effectiveness of particular intervention strategies aimed at reducing teacher stress. Furthermore, Jarvis (2002) stipulated that, despite the large quantity of generic stress management literature, there was relatively little research surrounding interventions to combat teacher stress. He also noted that despite cognitive factors playing a causal part in teacher stress, and CBT having been successfully used in other domains to correct maladaptive cognitions, there were no outcome studies for CBT-based interventions conducted within an education-based context. As such, Jarvis (2002) suggested that an important future direction in teacher stress research should be to focus on outcome studies testing the effectiveness of intervention strategies with an adequate long term follow-up, including research into the effectiveness of CBT-based stress management training (Jarvis, 2002, p5).

Chapter Five presented the findings of a 16-week long study into the effects of a CBT-based optimism intervention programme on perceived stress in student

teachers whilst undergoing, two six-week practicum elements of their one-year, postgraduate diploma of education (PGDE) in Physical Education (PE). Results suggest that using CBT-based skills significantly enhanced learned optimism and was associated with lower levels of perceived stress on placement. The current study extends the study presented in Chapter Five by further examining the hypothesised cause and effect relationship between optimism and perceived stress in student teachers by using a dose-response style design. This approach to designing empirical research to establish strong evidence of causality is based on the criteria for causation established by Hill (1965).

#### *6.1.2. The Criterion of Causality*

Proving a causal relationship can be extremely complex and is rarely the result of a single study (Lawrence-Baker, 1998). In 1965, Hill developed nine considerations for assessing whether an observed association involved a causal component or not. Specifically, Hill worked within a bio-medical model and was interested in identifying the causal, or non-causal, association between disease and environmental factors. In 1981, the McMaster University Group (Department of Clinical Epidemiology and Biostatistics: Walsh, 1994) identified the four most important criteria of causation: evidence from true experiments in humans, strength of the association, consistency of the association, and dose-response gradient. Each of these will be discussed below in terms of considering how they may be relevant and applied to psychological research, in comparison to applying them in medicine and physical health based research.

### *6.1.3. Criterion 1: Evidence from True Experiments in Humans*

The first of the criterion that is required to claim a component of causality is that the evidence being presented must have been collated from true experiments in humans. True experiments occur when identical groups of individuals are, or are not, exposed to the causal factor and are followed for the occurrence of the outcome of interest (Walsh, 1994). In a medical-research setting this may refer to exposing individuals to cigarette smoke and subsequently monitoring them to see if they go on to develop lung cancer. As identified by Walsh (1994), randomised controlled trials when the dependent variable is predicted to be a negative health outcome, are neither practical nor ethical. Walsh does however suggest that trials which may produce some preventative, or pre-emptive, effect against a negative outcome may be feasible. This may be particularly relevant in the case of research pertaining to psychotherapy, or sport psychology-based mental skills training.

An original feature of the study presented in Chapter Five is that it presented research which enhanced explanatory style in individuals who were not at risk of developing depression. In this respect the study took a pre-emptive approach as it aimed to enhance optimistic explanatory style in student teachers in order to reduce their perceived stress whilst undergoing the practicum element of their course. As such, the study presented in Chapter Five meets the requirements of this criterion in that it delivered the intervention to a group of individuals and then subsequently monitored their stress levels over a six-week teaching placement. Furthermore, the study also employed the use of a control group.

When research is conducted within a naturalistic setting, such as that in Chapter Five, it is never possible to ensure identical participant groups. However, the groups in Chapter Five were undergoing the same period of professional development on courses which were similar in structure and content, and equally demanding of participants. The stress levels of the control group participants were measured, and so the study presented data collected from both individuals who had, and who had not, been subjected to the causal factor of interest. Furthermore the use of a control group also allowed researchers to comment more confidently on the strength of the association between CBT-based optimism training and stress.

#### *6.1.4. Criterion 2: Strength of Association*

The strength of association is the second criterion highlighted by the McMaster University Group (Walsh, 1994) and Hill (1965) as being required to claim a causal component within an observed association. This criterion refers to the concept that a strong relationship in the data is more likely to have a causal component than a modest association (Holfer, 2005). In bio-medical research this often means that the odds favour the outcome of interest with, as opposed to without, exposure to the putative cause; the higher such odds, the stronger the association. Hill (1965) demonstrated this point with the high risk ratios for the association between exposure levels of smoking and incidence of lung cancer. This criterion of causality is also relevant within the psychological domain. Numerous studies have identified that individuals with a pessimistic explanatory style are more likely to develop depression and ill health (Peterson & Seligman,



1984; Buchanan et al., 1999; Ambramson et al. 2000) then individuals with an optimistic explanatory style. However, as highlighted by Hofler (2005), a strong association between variables does not always mean a causal component is present. Hofler points out how Hill himself identified that absence of a strong association does not rule out a casual effect (Hill, 1965). Similarly Rothman & Greenland (1998) provided evidence that strong relationships exist without a causal component.

The research presented in Chapter Five does show a significant impact of CBT-based optimism training on the perceived stress of student teachers whilst on placement and, as consequently meets the causality criterion of strength of association. However, this criterion cannot be relied upon alone to assume a causal component exists between the optimism training and the reduced stress levels. Subsequently, the other criteria of causality must be examined, such as the consistency of the association and the presence of a dose response gradient.

#### *6.1.5. Criterion 3: Consistency of the Association*

The consistency of the association is established when the relationship between exposure and outcome has been repeatedly demonstrated (Walsh, 1994). Previous research, already reviewed, has consistently shown that pessimistic explanatory style leads to depression (Peterson & Seligman, 1984; Buchanan et al, 1999; Ambramson et al. 2000) and ill health (Jackson et al, 2002; Buchanan et al 1999). Further more CBT-based interventions have been consistently shown to be able to enhance optimistic explanatory style and reduce the incidence of

depressive symptoms, depression and ill health (Buchanan et al, 1999; Gardner et al, 2005; Seligman et al, 2007). The research presented in Chapter Five indicates that CBT-based optimism training enhances optimistic explanatory style and reduces perceived stress in student teachers whilst on an in-school placement. As such, the Chapter Five results provide further evidence to support the third criterion of causality: consistency of the association.

#### *6.1.6. Criterion 4: Dose-Response Gradient*

The notion of dose-response studies originated in medical research. Within this bio-medical model, a dose-response gradient is demonstrated by an increase in the outcome of interest associated with an increase in the dose of the cause or independent variable. This concept has been adopted and applied within psychotherapy-based research in which a cause and effect relationship is being examined (Salzer et al., 1999; Hansen et al., 2002). However, as identified by Howard et al. (1986) and Hansen et al. (2002) dose-response methods have had to be adapted to fit psychotherapy-based research. One reason for this is that the content of, and delivery of, therapy may change in each and every session as it is largely adaptable based on the client. In this way it is not possible to compare a dose of therapy to the easily controllable and generic dose of a drug. In an attempt to combat this psychotherapy based research defines the dose as simple a session of therapy (Hansen et al., 2002) and the response as whether a particular outcome event has taken place.

It is interesting to note that dose-response research has often been used in applied psychotherapy research in an attempt to answer the question “how much therapy is enough?” (Hansen et al., 2002). Within this domain dose-response research considers the impact of varying doses of an independent variable on a target dependent variable, and has been identified as an area of inquiry that has important implications for both the practice and policy of psychotherapy (Hansen et al. 2002). The current thesis emphasises the enhancement of positive characteristics in order to help prevent stress perception in student teachers. In this respect the question of how much therapy is enough is important because, in the practical application of these workshops, the money saved if only five are required, say opposed to ten, will facilitate the training of more individuals.

In 2002, Hansen et al. conducted a comparative review of clinical trials and naturalistic data surrounding the issue of does-response in psychotherapy. They identified a lack of consistency between the amount of therapy required for improvement, as indicated by carefully controlled and implemented research trials, and the amount of therapy being received by a national database of 6,000 patients. Results showed that the majority of patients received far below the number of sessions assumed necessary to induce improvement in clinical trials. Hansen et al. (2002) also report a contrast in existing dose-response literature, with some studies indicating a positive correlation between the number of therapy sessions received and improvement, whilst others argue improvement levels off and reaches a point of diminishing returns over time. Due to the wide variety of studies incorporated in Hansen et al.’s (2002) review, and the mixed results, it is hard to draw specific conclusions from their paper, and the authors

themselves acknowledge that very little is known about the type of therapy or therapists which constituted their naturalistic sample. Subsequently, Hansen et al. (2002) concluded further research is needed to explore the presence of dose-responses in specific contexts.

The current study focuses specifically on the presence of a dose response in a CBT-based optimism training intervention designed to reduce teacher-stress. Following extensive research utilizing relevant databases no evidence was found to suggest that a dose response design, associated with a CBT based intervention, has been studied within this domain before. In order to further the research presented in Chapter 5 and explore the existence of a casual component it is necessary to investigate whether an increased ‘dose’ of CBT-based optimism training results in further reduced stress levels. Furthermore, to the best of the author’s knowledge, this is the first study which explores the presence of dose-response gradient associated with CBT training when it is delivered to individuals who have not been selected because of their predisposing risk of depression. The current study aims to further explore whether a continued CBT-based optimism training programme is beneficial to individuals who are not necessarily at risk of developing depression.

#### *6.1.7. The Relationship between Explanatory Style and Dispositional Optimism*

A second aim of the research presented in Chapter Five was to explore the potential relationship between the two predominant optimism constructs: explanatory style (Ambramson et al., 1978; Seligman, 2006) and dispositional

optimism (Scheier & Carver, 1985). Explanatory style refers to the way in which an individual makes attributions about events in their lives, and has shown to be successfully altered through the use of CBT-based interventions (Buchanan et al., 1999; Seligman et al., 2007). Dispositional optimism refers to an individual's expectancies regarding future events and is believed to be stable and trait-like (Scheier & Carver, 1985). Despite such differences, there is evidence to suggest that the two constructs could be conceptually linked. Ambramson et al (1979) stipulate that how individuals routinely explain the events in their lives will effect their future expectations whilst individuals with an optimistic disposition are more likely to have rosier evaluations of their past and present life events and outcomes (Busseri et al., 2009). The results in Chapter Five reported a positive, but non-significant relationship between explanatory style (as measured by the ASQ: Peterson et al., 1982) and dispositional optimism (as measured by the LOT: Scheier & Carver, 1985). However, it was concluded that further research, of a longitudinal nature, was required to explore this relationship further as being a dispositional characteristic, dispositional optimism may take longer to change and if someone is continuously more optimistic in their explanations of events and has successfully modified their thought processes, this will have a subsequent, if not immediate, effect on their dispositional outlook.

#### *6.1.8. Research Aims*

The current study has two main aims. The first is to investigate the presence of a causal component in the optimism-stress relationship. This will be done through addressing the two criteria of causality which were not addressed by the initial

study presented in Chapter 5: the consistency of the association and the presence of a dose-response gradient. The second aim of the current study is to extend the period of monitoring the potential relationship between the two predominant optimism constructs: optimistic explanatory style and dispositional optimism.

## **6.2. Method**

### *6.2.1. Participants*

Forty-One student Physical Education (PE) teachers enrolled on postgraduate diploma of education (PGDE) courses at the University of Edinburgh and Strathclyde University, and who had participated in the group-based optimism training study, presented in Chapter Five, were invited to continue participation with the research. Of these, 25 (9 males and 16 females) students, in total, agreed to participate in the current study, during which they were divided into three research groups. As in the first study, there was a control group which comprised of eight students (3 male and 5 female) from the University of Strathclyde. Participants in this group had received no CBT-based optimism training during the initial study (Chapter 5). Participants from the original experimental group, consisting of students from the University of Edinburgh, and who had taken part in a four week CBT-based optimism intervention, were divided, on a voluntary basis, into two sub-groups (CBT and CBT+) for the current study. The CBT group consisted of seven participants (7 males), who received no further optimism training, and the CBT+ group, consisted of ten

participants (4 female and 6 male), who received the additional one-to-one optimism training.

#### 6.2.2. Measures

The measures used to assess optimistic explanatory style, dispositional optimism, self-efficacy and the major components of stress, (cognitive, affective and physical) were the same measures as used in Chapter 5. A brief re-cap on each measure is provided below, but for more information, please see section 5.2.2.

*Explanatory Style Optimism:* The Attributional Style Questionnaire (ASQ: Peterson et al., 1982) was employed to assess explanatory style. The ASQ presents twelve hypothetical events (six positive and six negative) following which participants must state the cause for each event, and rate this cause, on a 7 point scale, for each of the three dimensions of explanatory style: internal/external, stable/unstable and global/specific. Nine scores are derived from the ASQ: a score for each dimension for good and bad events, a composite score for explanatory style of both good and bad events and, finally, a total explanatory style score.

*Dispositional Optimism:* The Life Orientation Test (LOT: Scheier & Carver, 1985) used to measure dispositional optimism. This 12 item questionnaire (four positive, four negative and four filler items) require participants to rate the extent to which they agree with each item (4 = strongly agree to 0 = strongly disagree). The LOT provides a single total measure of dispositional optimism.

*Self-Efficacy:* The Teacher's Sense of Efficacy Scale (TSES: Tschannen-Moran & Woolfolk-Hoy, 2001) was used to measure participant's self-efficacy in the classroom. This self-report tool asks participants to rate, on a nine point scale, their opinion regarding each of the 24 statements relating to teacher's capabilities in the classroom and generates a total self-efficacy score.

*Cognitive stress:* The Perceived Stress Scale (PSS: Cohen et al., 1983) was used to assess cognitive stress throughout the practical placement. The 14-item (7 positive and 7 negative) self-report measure assesses the extent to which one's life events are appraised as stressful.

*Affectivity:* The Positive and Negative Affect Scales (PANAS: Watson et al., 1988) was employed to measure affectivity. Comprising of two 10-item moods checklists (one positive, one negative), participants are asked to rate, on a five point scale, the degree to which they have experienced that descriptor over the past week. The PANAS provides a total score for positive affectivity and a total score for negative affectivity.

*Physical Stress:* A Weekly Symptom Checklist (WSCL) was computed by the authors to assess physical stress. Participants were asked to identify which, if any, of the 23 common symptoms of stress presented, they had experienced over the last week.



*Weekly Diary:* A short reflective diary was presented to the participants, in table form, to be completed at the end of each week. The aim of this was to identify any particularly stressful events.

### *6.2.3. The Teacher Educator Course*

The two PGDE courses from which participants were recruited were designed around the same structure, both consisting of university-based and practicum elements, and running parallel to each other in time. The university-based part involves teaching workshops and lecture-based sessions. The practicum element consists of three six-week, placements during which students were required to teach physical education in a secondary school. During these placements students were observed regularly by a supervisory staff member and underwent one critical performance evaluation, conducted by university assessors and supervisory staff member. The result of this critical evaluation combined with the feedback from senior staff at the school determined whether the student passed that placement. A failed placement, at any point throughout the year can result in the student failing the entire course, and subsequently failing to fulfil professional qualifications. The constant evaluation and pressures of in-school teaching have been identified as making the practical elements of post-graduate teaching course highly stressful for prospective teachers (Chambers & Roper, 2000).

#### *6.2.4. The Intervention*

The prolonged CBT-Based optimism training comprised of two, one hour long, individual meetings between the participant and the researcher, with between session homework. It is argued that although the delivery of the training may have changed from group to individual-based, the content remains to be CBT-based and still consists of identifiable ‘sessions’ and therefore, meets the definition of a ‘dose’ used by psychotherapy based research. The meetings took place following completion of the second teaching placement, and before commencement of the third, whilst the participants were attending a taught section of the PGDE course at Edinburgh University. The aim of these sessions was to assess, re-affirm and build on the CBT-based skills introduced to the participants during the four-week optimism group-workshop they had previously attended (see Chapter 5). These skills included (1) Identifying negative automatic thoughts (NATS) and underlying beliefs; (2) Examining and responding to NATS; (3) Replacing NATS with more constructive and optimistic interpretations, beliefs and behaviours; (4) utilising these skills for stress management (identifying and planning for stressful situation); (5) applying new coping strategies to new and relevant teaching scenarios.

Participants in the intervention group (CBT+) were required to complete between session homework. This involved actively applying the skills learnt in the workshops and individual sessions to events in their everyday lives, and documenting their effect. The aim of this was to enable the participants an opportunity to practice and refine their use of CBT techniques in real-time

pressurised events. For this reason, the use of homework in CBT has been highly recommended (Neenan & Dryden, 2005). It also provided stimulus for a large part of the discussion within one-to-one sessions. To ensure adherence, participants were informed during the first face to face session that they would be required to implement these skills in their everyday lives and the diaries they kept of these attempts would provide part of the stimulus for the following session.

Conducting one-to-one CBT sessions requires the practitioner, or researcher, to respond to the needs of the participant. In this respect sessions are highly individual, can vary in content and, consequently, present potential drawbacks for scientific research in terms of providing systematic and uniform levels of intervention. In order to minimise the amount of extraneous variables that could have arisen in these sessions, the researcher developed a generic structure for the sessions which allowed participants to discuss events of their choice but also meant the intervention was as similar as possible for each participant. A brief outline of the structure of each session is provided below.

During the first sessions all participants were asked to discuss the recently completed placement, how they utilised the optimism skills and how effective they were. To gain a more in depth view of the skills in use the researcher then guided the participants through an adapted daily thought record (DTR). A DTR is a common tool used in CBT and was introduced to participants during the workshop based intervention (see Chapter 5 and Appendices 20 and 26). The DTR requires individuals to consider an event, their resulting emotion from that

event and the connecting thought. Participants are then asked to generate alternate, more optimistic thoughts, that could have been adopted in that situation, and consider what emotions would have resulted from this thought. In the first session of the current intervention, participants were asked to complete two DTRs, one for a positive event that happened whilst on placement, and one for a negative event. This was to demonstrate and emphasise the importance of optimistic explanation for both bad and good events, and check the use of the skills. If the individual was already successfully using the skills, the session would move on. If participants were struggling with the skills, more discussion would take place about identifying and replacing NATS.

Following this, participants were asked to look to the weeks ahead and identify an upcoming potentially stressful event. They were then asked to develop thoughts, and plan behaviour, which would minimise the stress experienced in the situation. These then became the participant's homework goals for the following session. The second one-to-one session began by reviewing the homework goals set during the first session. Then participants were asked to use the optimism skills identify and plan for potentially stressful events that could occur during their final teaching placement.

#### *6.2.5. Procedure*

The current study was a direct continuation of the study described in Chapter 5. As such, the ASQ, LOT and TSES scores collected immediately prior to the commencement of the second six-week teaching placement formed the baseline measure of optimistic explanatory style, dispositional optimism and self-efficacy for the current study. The PSS, PANAS and WSCL completed every Wednesday, and the weekly reflective diary completed every Friday, by the participants throughout the six weeks of the second practicum placement. Averaging these weekly scores provided the baseline level of stress for the current study.

A meeting was held with each cohort on their arrival back onto the taught element of the PGDE, conducted within each relevant university. Despite informed consent having been collected at the beginning of the basic intervention study, participants were reminded of their right to withdraw at any time, and were invited to remain in the study. During the four weeks, the control and CBT group continued with the taught PGDE course uninterrupted. Members of the CBT+ group, however, attended two, one-hour individual sessions with the researcher during which they received the prolonged CBT-based optimism training described above.

Immediately prior to the third practical placement, all participants were asked to re-complete the ASQ, LOT and TSES, and were provided with new research booklets identical to those used during placement two. These bound research

booklets contained the required number of copies of the PSS, PANAS, WSCL and reflective diary, in the order of completion, needed by the participants to successfully complete data collection. The data collection procedure during the third placement mirrored exactly that conducted during the first and second placements. Participants were asked to complete the PSS, PANAS and WSCL on the Wednesday of each placement week, and to complete a reflective diary of the week on the Friday. To maximise adherence to data collection, participants were contacted on a Wednesday morning by the researcher via email and text, reminding them to complete their booklets.

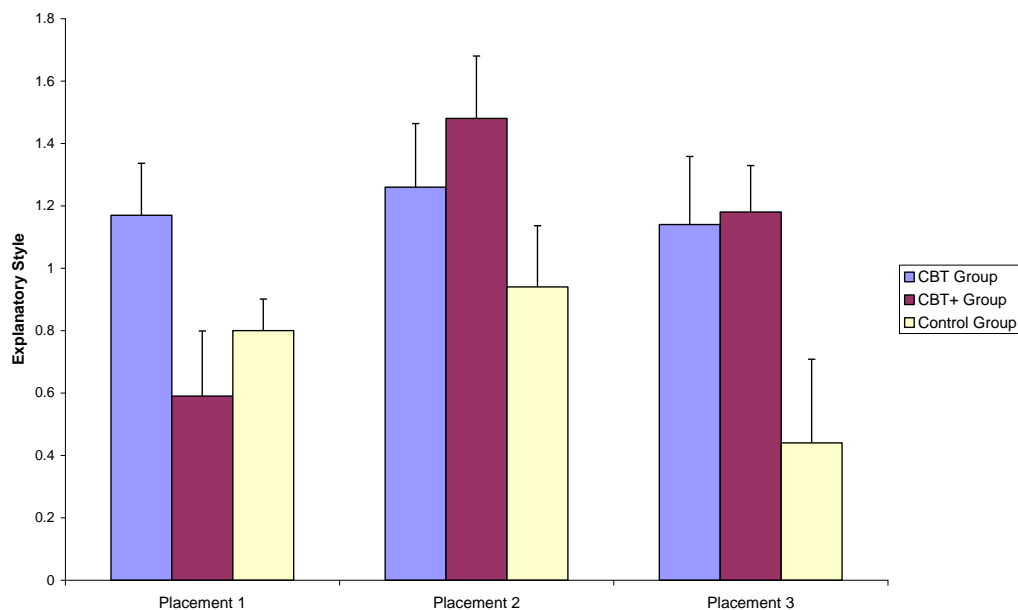
#### *6.2.6. Statistical Analysis*

Independent t-tests were used to test for differences between the group's baseline levels of stress, and change scores. Multiple t-tests were chosen over post-hoc tests due to the mixed-measures design of the current study. The use of multiple t-tests is justified when there are only two groups in a between-subjects design as the risk of inflating the Type I error rate is equal when using either approach. Furthermore, in repeated measures designs the sphericity of F is jeopardised and consequently the usual post-hoc tests are unavailable. Paired samples t-tests were used to test for intra-group differences in stress from one placement to another. Pearson's r test for correlations was employed to test for relationships between explanatory style (ASQ: Peterson et al., 1982), dispositional optimism (LOT: Scheier & Carver, 1985) and self-efficacy (TSES: Tschannen-Moran & Woolfolk Hoy, 2001).

## 6.3 Results

### 6.3.1. Prolonged CBT Training and Explanatory Style

Changes in explanatory style over the two periods of cognitive behavioural therapy (CBT) based optimism training can be seen in Figure 6.1. A two-way mixed ANOVA reported a change in explanatory style over the three assessment points ( $F_{(2,40)} = 2.783$ ,  $p = 0.074$ ) but no significant interaction between explanatory style and the amount of CBT training received ( $F_{(2,20)} = 3.469$ ,  $p = 0.051$ ).



**Figure 6.1:** Changes in explanatory style for groups CBT ( $n=7$ ), CBT+ ( $n=10$ ) and control ( $n=8$ ), measured at baseline (placement one), following a workshop based intervention (placement two) and following a one-to-one based intervention designed to assess dose response (placement three).

Due to the nature of completing naturalistic data collection, it was impossible to ensure the three groups began with equal levels of explanatory style. To address

this, independent t-tests were conducted on the average explanatory style reported by each group prior to placement one. Results show that, prior to any CBT-based cognitive training, there was no significant difference between the control group and the CBT or CBT+ groups. However, there was a significant difference in explanatory style between the CBT group and CBT+ group prior to placement one ( $t = 2.173$ ,  $df = 20$ ,  $p = 0.042$ ). Following the 4 x 1 hour workshop segment of the CBT program paired-samples t-tests showed that the CBT+ group portrayed a significant increase in explanatory style ( $t = 3.181$ ,  $df = 10$ ,  $p = 0.010$ ). Although not significant, the CBT group also showed an increase ( $t = 0.803$ ,  $df = 9$ ,  $p = 0.443$ ) as did the control group, who received no CBT training, ( $t = 0.801$ ,  $df = 12$ ,  $p = 0.439$ ). The mean levels of explanatory style reported by each group at placements one, two and three are reported in Table 6.1.

**Table 6.1:** Mean levels of explanatory style reported by the CBT, CBT+ and Control groups at placements one, following the initial CBT-based optimism training, at placement two and, following the prolonged training at placement three.

Group	Placement 1	Placement 2	Placement 3
CBT	1.17	1.26	1.14
CBT+	0.59	1.48	1.18
Control	0.8	0.94	0.44

Placement two provided baseline measures for the current study, therefore independent t-tests were also conducted on each group's average level of explanatory style reported immediately prior to placement two. Results showed



that there was no significant difference between the CBT and CBT+ groups ( $t = .764$ ,  $df = 19$ ,  $p = 0.454$ ). There was also no significant difference between the CBT and control groups ( $t = 1.145$ ,  $df = 20$ ,  $p = 0.266$ ). The difference reported between the CBT+ and control group was larger, but just outside a significance value of  $p = 0.05$  ( $t = 1.939$ ,  $df = 21$ ,  $p = 0.066$ ).

Following the one-to-one CBT-based optimism training, only received by the CBT+ group, all three groups displayed a drop in explanatory style. Group CBT+ portrayed a significant drop in explanatory style ( $t = 3.061$ ,  $df = 7$ ,  $p = 0.018$ ) as did the control group ( $t = 2.719$ ,  $df = 6$ ,  $p = 0.035$ ). At this time group CBT, who had received no further training, also portrayed a drop in explanatory style, however this was not significant ( $t = 1.000$ ,  $df = 8$ ,  $p = 0.347$ ). Independent t-tests were conducted on the data gathered immediately prior to placement three to test for differences between the three groups. Results show that there was no significant difference between the CBT and CBT+ groups ( $t = 0.129$ ,  $df = 16$ ,  $p = 0.899$ ) in reported explanatory style. However, there was a significant difference between the CBT+ group and the control group ( $t = 2.556$ ,  $df = 12$ ,  $p = 0.025$ ). There was also a difference, although just outside the significance value, between the optimistic explanatory style reported by the CBT group and the control group ( $t = 1.997$ ,  $df = 14$ ,  $p = 0.068$ ).

### *6.3.2. Prolonged CBT Training and Stress*

Due to the fact the original control group were not needed to assess the presence of a dose response in relation to CBT-training to enhance optimism, they were omitted from further analysis pertaining to stress. The two teaching placements used to assess stress in the current study had the same structure to the teaching placement in the first study (see Chapter 5). This structure meant the researcher could only be sure that all participants were subjected to stressful situations during the first three weeks of placement. After this point, some students had completed their critical evaluation and some had not. Initial analysis suggested that during these final three weeks stress levels varied dramatically within the same group. As such, the researcher adopted the same method of analysis demonstrated in Chapter Five, only using the initial 3 weeks of data to ensure results reflected the impact of the prolonged CBT-based optimism training. In a continuation from the study reported in Chapter Five, the current study measured cognitive stress, positive and negative affectivity, and physical stress in order to gain a holistic view of the impact of the CBT-based optimism intervention on the stress levels exhibited by student teacher's during their practical placements. A summary of the mean levels of cognitive, affective and physical stress reported by both the CBT and CBT+ groups can be seen in Table 6.2.

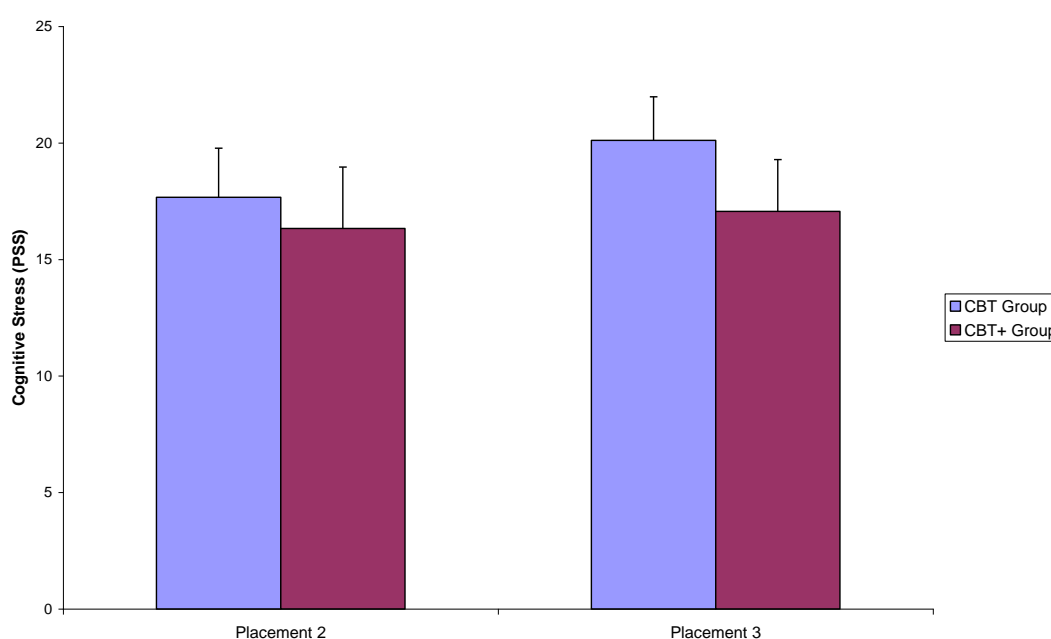
**Table 6.2:** The mean levels of cognitive stress, negative affectivity, positive affectivity and physical stress symptoms reported by the CBT and CBT+ groups during placement 2 (baseline) and following the prolonged CBT-based optimism training, during placement three.

	<b>Placement Two</b>		<b>Placement Three</b>	
	<b>CBT Group</b>	<b>CBT+ Group</b>	<b>CBT Group</b>	<b>CBT+ Group</b>
<b>Cognitive Stress</b> (as measured by the PSS)	17.67	16.33	20.11	17.01
<b>Negative Affectivity</b> (as measured by the PANAS)	14	16.67	14.72	15.86
<b>Positive Affectivity</b> (as measured by the PANAS)	38.17	36.57	38.28	36.14
<b>Physical Stress Symptoms</b> (as measured by the WSCL)	1.61	1.17	1.17	1.92

### *6.3.3. Prolonged CBT Training and Cognitive Stress*

Baseline measures of cognitive stress (as measured by the Perceived Stress Scale, PSS: Cohen et al., 1983) were computed using the data collected during the participant's second teaching placement. At this point both groups had experienced the same a four-week, group-based CBT intervention aimed at enhancing optimistic explanatory style. The process of conducting research in this naturalistic setting with real-life populations meant it was not possible to ensure participants started the current study with equal levels of cognitive stress at baseline level. Therefore an independent t-test was conducted to test for any

differences in reported cognitive stress prior to the commencement of further CBT-based optimism training. Results showed no significant difference was present between the CBT group and CBT+ group during their second teaching placement ( $t = 0.351$ ,  $df = 18$ ,  $p = 0.731$ ). Average changes in cognitive stress, for each group, over the two teaching placements are shown in Figure 6.2.

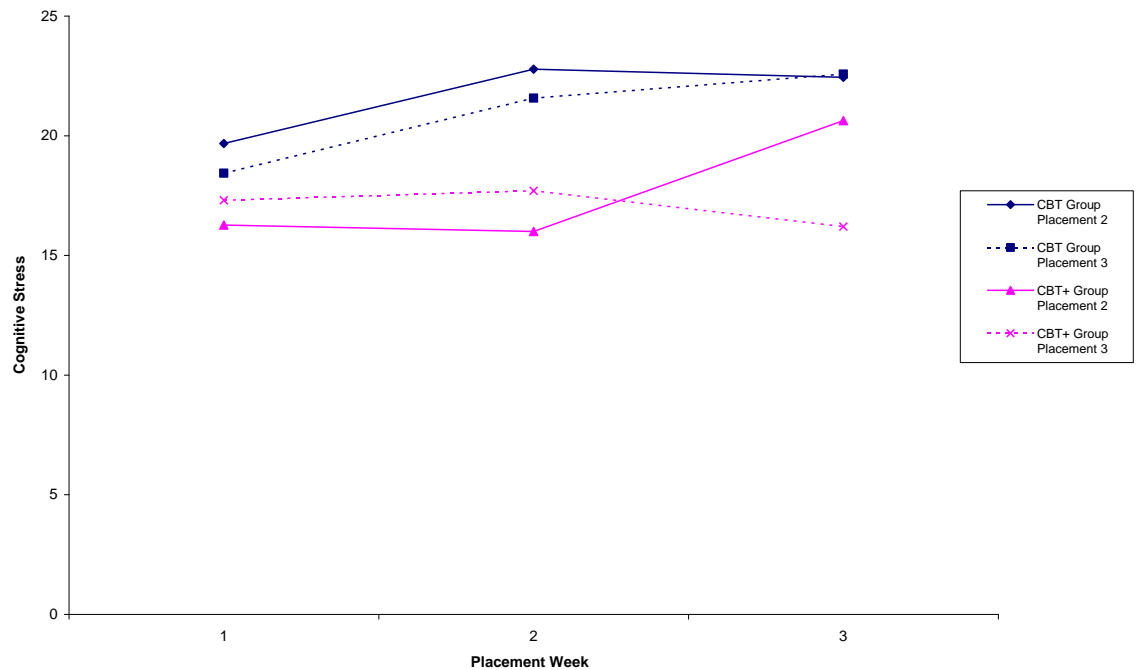


**Figure 6.2:** Average perceived cognitive stress reported at teaching placement two and three for groups CBT ( $n=7$ ), who received no further training and CBT+ ( $n=10$ ), who received the one-to-one CBT-based optimism training between the two placements.

Change scores were calculated for each group by subtracting the average cognitive stress reported during placement two from that reported during placement three. An independent t-test was conducted on these change scores to test for any significant difference following the prolonged CBT training. Results showed no significant difference ( $t = 0.529$ ,  $df = 14$ ,  $p = 0.605$ ) between the two groups following the prolonged CBT-based optimism training. An independent

t-test also showed no significant difference in the amount of cognitive stress reported by each group during placement three ( $t = 0.942$ ,  $df = 14$ ,  $p = 0.362$ ). Despite, the lack of significances reported by the independent t-tests, Figure 6.2 shows that the CBT group demonstrated a larger increase in cognitive stress during placement three than during placement two, than the CBT+ group. Paired samples t-tests were conducted to explore this further. Results show that the increase in cognitive stress reported by the CBT+ group from placement two to three was not significant ( $t = 0.305$ ,  $df = 9$ ,  $p = 0.767$ ). However, the increase portrayed by the CBT group, who received no further optimism training, was only just outside the significance value required ( $t = 2.524$ ,  $df = 5$ ,  $p = 0.053$ ).

Further analysis was conducted on weekly reported cognitive stress over the two teaching placements. As shown in Figure 6.3, the CBT+ group showed slightly elevated levels of cognitive stress at weeks one and two of placement three to those reported at the corresponding times during placement two. However, the level of cognitive stress reported at week three of placement three is far below that reported at week three of placement two, and also below the levels reported by the CBT group. Independent t-tests highlighted no significant differences between the two groups for reported cognitive stress at weeks one ( $t = 1.186$ ,  $df = 18$ ,  $p = 0.251$ ), two ( $t = 1.834$ ,  $df = 18$ ,  $p = 0.083$ ) and three ( $t = 0.463$ ,  $df = 15$ ,  $p = 0.650$ ) of placement two. Following the intervention period (delivered only to group CBT+) there were also no significant differences in self-reported cognitive stress between groups CBT and CBT+ at weeks one ( $t = 0.318$ ,  $df = 15$ ,  $p = 0.755$ ), two ( $t = 1.281$ ,  $df = 15$ ,  $p = 0.220$ ) and three ( $t = 1.884$ ,  $df = 15$ ,  $p = 0.079$ ) of placement three.

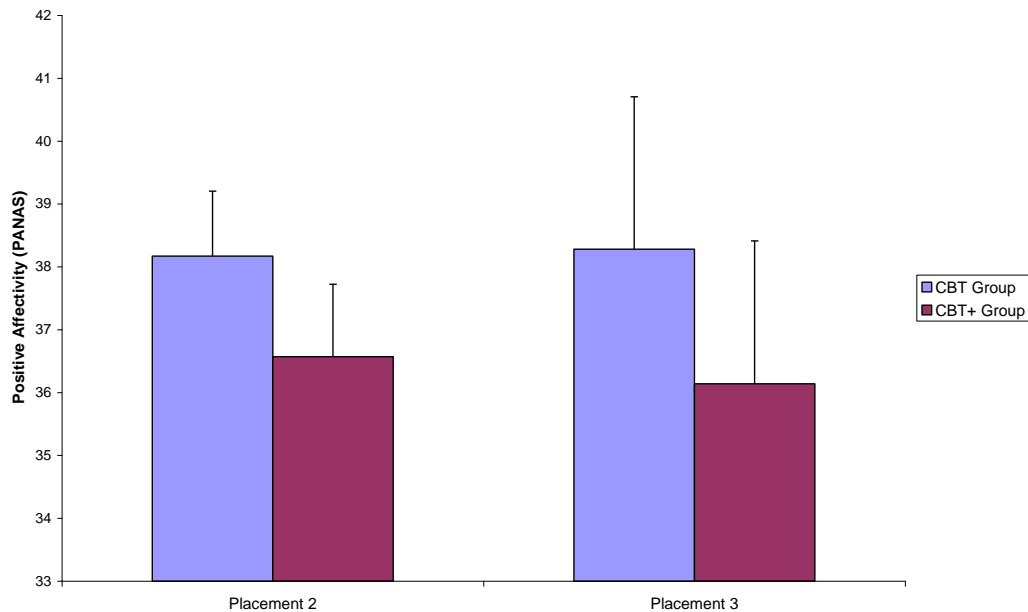


**Figure 6.3:** Weekly changes in cognitive stress, as recorded over the first five weeks of teaching placements two and three, for the CBT group ( $n=7$ ), who received no further training between placements, and the CBT+ group ( $n=10$ ), who received the one-to-one CBT-based optimism training between the two placements.

#### 6.3.4. Prolonged CBT Training and Positive Affectivity

The average levels of positive affectivity, for both groups at each placement, are shown in Figure 6.4. As can be seen, self-reported positive affectivity (as measured by the PANAS: Watson et al., 1988) remained fairly consistent for both groups from placement two to three. An independent t-test reported no significant difference between the two groups' levels of positive affectivity reported at baseline level (placement two;  $t = 0.887$ ,  $df = 14$ ,  $p = 0.390$ ). As could be expected from eyeballing the data in Figure 5.4, there was also no significant difference between the two groups' positive affectivity during

placement three ( $t = 1.271$ ,  $df = 14$ ,  $p = 0.224$ ) or between the change scores calculated for each group ( $t = 0.071$ ,  $df = 14$ ,  $p = 0.944$ ). There was also no significant difference between the two groups on a weekly basis throughout the two placements.

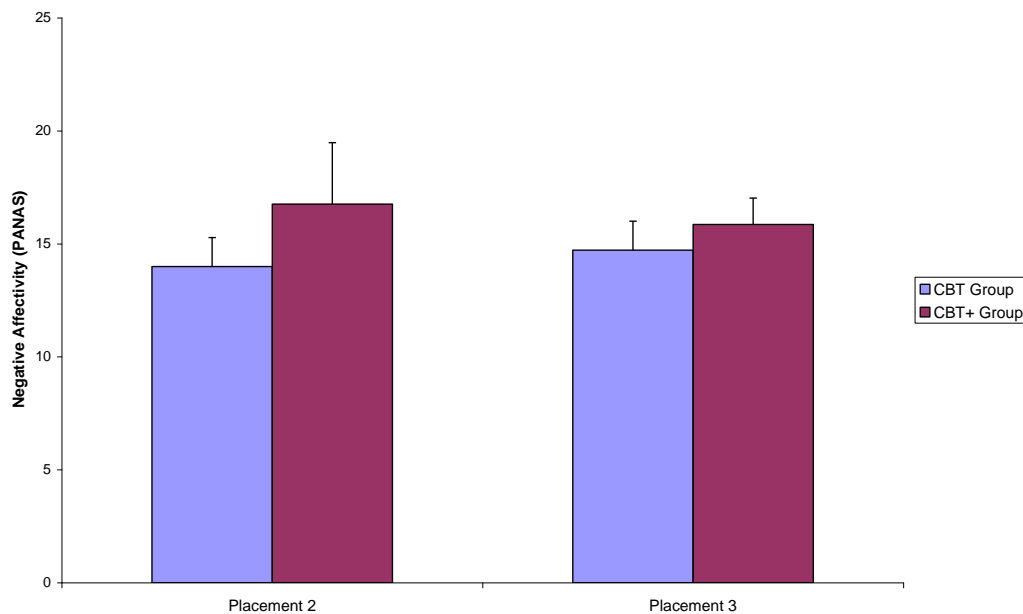


**Figure 6.4:** Average positive affectivity reported during placement two and three for group CBT ( $n=9$ ), who received no CBT training between each placement, and group CBT+ ( $n=9$ ) who received one-to-one CBT-based optimism training during this time.

### 6.3.5. Prolonged CBT Training and Negative Affectivity

During placement three group CBT+ showed a drop in negative affectivity whilst the CBT group, who received no further optimism training, showed an increase (see Figure 6.5). An independent t-test reported no significant difference between the two groups at baseline levels of negative affectivity ( $t = 0.128$ ,  $df = 14$ ,  $p = 0.900$ ). It also reported no significant difference in change scores or the in the average amount of negative affectivity reported by each group during

placement three ( $t = 0.056$ ,  $df = 14$ ,  $p = 0.956$ ). Paired samples t-tests were conducted for each group to assess intra-group change from placement two to three. Results showed no significant change in negative affectivity for the CBT+ group ( $t = 0.386$ ,  $df = 6$ ,  $p = 0.713$ ). Whilst there was also no significant change in the CBT group ( $t = 2.291$ ,  $df = 5$ ,  $p = 0.071$ ), the  $p$  value was much lower at 0.071, suggesting the increase portrayed by the CBT group was larger than the decrease portrayed by the CBT+ group.



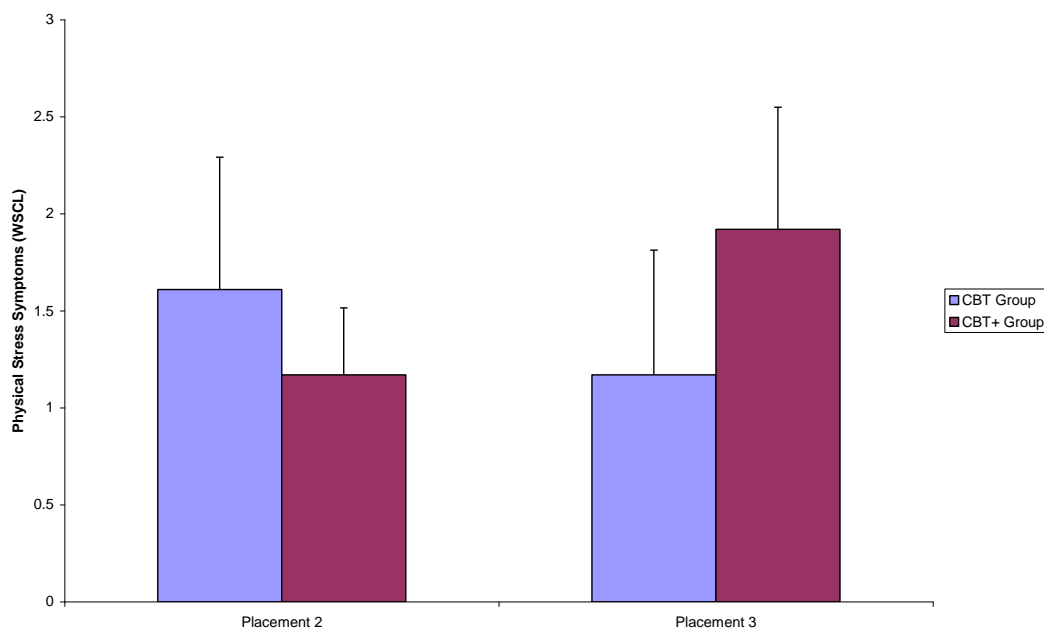
**Figure 6.5:** Average negative affectivity during teaching placement two and, following the prolonged CBT-based optimism training (delivered only to the CBT+ group), in placement three for groups CBT ( $n=7$ ) and CBT+ ( $n=10$ ).

### 6.3.6. Prolonged CBT Training and Physical Stress

Inspection of the graphical data presented in Figure 6.6 suggests that the CBT group, who received no further optimism training between placement two to three, demonstrated a drop in physical stress from placement two to placement



three. The CBT+ group however, who received one-to-one optimism training sessions, appear to have shown an increase in the number of physical stress symptoms reported. An independent t-test reported no significant difference between baseline levels of self-reported physical stress symptoms reported by each group at placement two ( $t = 1.151$ ,  $df = 16$ ,  $p = 0.267$ ). There was also no significant difference between the reported physical symptoms of stress of group CBT and CBT+ at placement three ( $t = 0.900$ ,  $df = 14$ ,  $p = 0.383$ ). An independent t-test highlighted no significant difference between the change scores of each group ( $t = 2.108$ ,  $df = 12$ ,  $p = 0.057$ ), although this was approaching significance levels.



**Figure 6.6:** Physical stress symptoms reported by groups CBT ( $n=7$ ) and CBT+ ( $n=10$ ) at placement two and, following the prolonged CBT-based optimism training (delivered only to the CBT+ group) at placement three.

### 6.3.7. *Explanatory Style, Dispositional Optimism and Self-Efficacy*

Table 6.3 shows the correlations between explanatory style, its subcomponents: positive composite and negative composite, dispositional optimism and self-efficacy measured at placement two and their repeated measures counterparts measured at placement three. Pearson's  $r$  correlation reported no significant relationships between explanatory style, or its sub components, and dispositional optimism or self-efficacy at placement two or placement three. Furthermore, paired samples  $t$ -tests were conducted to explore any differences between the average dispositional optimism and self-efficacy reported by the CBT+ group during placement two and, following the prolonged CBT-based optimism training, at placement three. Results show that there was no significant difference in dispositional optimism ( $t = 0.107$ ,  $df = 6$ ,  $p = 0.918$ ) or in self-efficacy ( $t = 1.257$ ,  $df = 7$ ,  $p = 0.249$ ).

**Table 6.3**

Correlation coefficients between learned optimism, Good-score, Bad-score, dispositional optimism and self-efficacy assessed at both placements two (n=34) and three (n=34) for groups CBT, CBT+ and control.

	Explanatory Style Placement 2	Good-score Placement 2	Bad-score Placement 2	Dispositional Optimism Placement 2	Self- Confidence Placement 2	Explanatory Style Placement 3	Good-score Placement 3	Bad-score Placement 3	Dispositional Optimism Placement 3	Self- Confidence Placement 3
Explanatory Style Placement 2	–									
Positive Comp. Placement 2	.538**	–								
Negative Comp. Placement 2	-.684**	.247	–							
Dispositional Optimism Placement 2	.117	.185	.026	–						
Self-Confidence Placement 2	.131	.182	.007	.293	–					
Explanatory Style Placement 3	.665**	.417*	-.475*	.233	.066	–				
Positive Comp. Placement 3	.201	.251	.640**	.217	.142	.641**	–			
Negative Comp. Placement 3	-.644**	.084	.805**	-.108	.051	-.639**		–		
Dispositional Optimism Placement 3	.128	.035	-.120	.796**	.273	.257	.151	-.178	–	
Self-Confidence Placement 3	.092	-.107	-.187	-.052	.445	.218	.155	-.125	-.020	–

\* significant at 0.05

\*\* significant at 0.01

## 6.4. Discussion

It was hypothesised that a prolonged Cognitive Behavioural Therapy (CBT) based learned optimism intervention would further enhance optimistic explanatory style and be associated with lower levels of perceived stress in student Physical Education (PE) teachers whilst undergoing the practicum element of their Postgraduate Diploma of Education (PGDE). The results of the current study do not directly support this hypothesis. Unexpectedly, all three groups displayed a reduction in explanatory style immediately prior to their third and final practicum placement. However, the CBT+ group who received the prolonged training did portray significantly higher levels of explanatory style at this point in time than the control group. Subsequently, although the prolonged CBT-based training did not increase levels of optimistic explanatory style, such trends in the data suggest that it may have reduced the potential severity of drop off in optimistic explanatory style, such as that displayed by the control group who had received no CBT-based optimism training.

A second unexpected finding was that both the CBT and CBT+ group portrayed an increase in perceived cognitive stress from placement two to three. The increase portrayed by the CBT+ group was not significant, whilst the increase portrayed by the CBT group had a *p* value of 0.053, just on the border of significance. This may indicate that along with minimising the severity of the drop in explanatory style, the prolonged optimism training also combated the rise in perceived cognitive stress (PSS: Cohen et al., 1983). Furthermore, prolonged the CBT-based optimism training appears to have been associated with a slight decrease in negative affectivity (PANAS: Watson et al., 1988), as demonstrated

by the CBT+ group in comparison to the CBT group. There were no associations between the intervention and positive affectivity (PANAS: Watson et al., 1988) or physical stress symptoms (as measured by a weekly symptom checklist). Within the results, there were few instances where findings approached statistical significance. However, there were various trends which were supported by a p value of 0.05 to 0.07. In these cases, the researcher has chosen to discuss the trends within the current section because as highlighted by Rosnow and Rosenthal (1989, p1277) dichotomous significance testing has no ontological basis... 'surely God loves 0.06 as much as 0.05'.

A secondary aim of the study included monitoring the impact of an optimistic explanatory style intervention on dispositional optimism. Following the prolonged training, there were positive relationships between learned optimism, dispositional optimism and self-confidence, although these were not significant. There was also no significant change in dispositional optimism following the optimistic explanatory style intervention.

#### *6.4.1. Prolonged CBT-Based Optimism Training and Explanatory Style*

During the third, and final, teaching placement the CBT+, CBT and control groups all displayed a drop in optimistic explanatory style. The control and CBT groups, who received no optimism training between placements two and three, both dropped to below their baseline level of optimistic explanatory style. The CBT+ group, who received two, one-hour sessions of individual CBT-based optimism training between placements two and three, also demonstrated a drop in explanatory style immediately prior to placement three. However, their

average levels of optimistic explanatory style at this time were still significantly higher than those of the control group and higher than their own measure, recorded immediately prior to any receiving any optimism training. It is therefore suggested that, whilst the prolonged CBT-based optimism training did not lead to an increase in optimistic explanatory style as hypothesised, it did have a positive impact on PGDE students by reducing the potential drop in optimism. These results conflict with previous findings which show that CBT-based optimism training enhances explanatory style (Seligman et al., 2007). However, unlike previous studies (Buchanan et al., 1999; Seligman et al., 2007), the current study is the first to explore whether changing the amount of training received impacts upon explanatory style levels. Therefore, there may have been no increase during the current study because the pinnacle of increase had already occurred during the initial CBT-based training delivered during the intervention reported in Chapter Five.

This evidence incorporates some interesting implications for the study of dose-response. It would appear that there was no dose-response relationship between prolonged CBT-based training and optimistic explanatory style. However, the training does appear to have buffered the participants against a potentially severe drop in optimistic explanatory style. Consequently these results provide some confliction as to whether a prolonged ‘dose’ of CBT-based optimism training is beneficial or not. The dose-response research which originated within a biomedical model has had to be adapted in order to be applicable to psychotherapy based research (Howard et al., 1986; Hansen et al., 2002). This is to account for the varying approaches and content which takes place within psychological practice and the fact that therapy is individually tailored to meet the needs of the

client. To accommodate such practicalities, psychotherapy-based research defines dose-response in the following generic way. A 'dose' is a session of therapy and a 'response' is whether a particular outcome occurs (Hansen et al., 2002). This fairly ambiguous definition allows for varying nature the session of therapy might take on. In the current study part of the 'response' was the level of optimistic explanatory style displayed by the participants. The fact it did not increase suggests that there was no dose-response. But psychology can also have an effect as a preventative tool and the fact that the individual's who received the prolonged training portrayed less of a drop than the control group suggests that a reaction did take place, in a preventative way. Consequently it is suggested that further research is needed to clarify what, if any, dose-response relationship exists between CBT-based optimism training and optimistic explanatory style.

It is interesting that all groups displayed a drop in optimistic explanatory style which is believed to be a stable construct unless acted upon by an intervention (Burns & Seligman, 1989). However, this may be explained by the fact that participants were undergoing an intensive period of professional training and development on the PGDE, and were also on their third and final placement which they must pass in order to successfully complete the course. As they learn and adapt to this new vocation, it seems reasonable that they themselves will change to meet the requirements of their new environments. Whilst the control and CBT group returned to their natural levels of optimistic explanatory style, it could be argued that the CBT-based optimism training experienced by the CBT+ group between placements two and three, maintained a level of optimistic explanatory style higher than that which they started the PGDE year. This also has repercussions for the study of dose-response within psychological research as

it is logical that the environment, and life occurrences, will have a greater impact on the effect of the dose than they would on the impact of a drug dose.

#### *6.4.2. Prolonged CBT-Based Optimism Training and Stress*

Due to the fact that the original control group were not needed to assess the presence of a dose-response in relation to prolonged CBT-based optimism training and stress, they were therefore omitted from the analysis pertaining to stress. As such, the following section will only discuss the results displayed by the CBT group, who received no further optimism training following the initial four, one-hour workshops delivered to both groups prior to placement two, and the CBT+ group, who received a further two, one-hour individual meetings during the university based section of the course conducted between placements two and three.

In line with the drop in optimistic explanatory style reported by both groups prior to the commencement of placement three, both the CBT and CBT+ groups portrayed an increase in average cognitive stress (as measured by the PSS: Cohen et al, 1983) during placement three to that reported during placement two. However, the CBT+ group still reported less cognitive stress than the CBT group (see Figure 6.2). Although this was not significant, the trend would suggest that the prolonged optimism training had a positive impact by reducing the amount of stress perceived by the participants. This trend is supported by the fact that the increase in cognitive stress for the CBT+ group was not significant, but the increase for the CBT group was just outside the significance value with  $p = 0.053$ . Given the small sample sizes, it is suggested that this is justified as of



interest to the current study. Consequently, it is proposed that, as the prolonged training minimised the drop in optimistic explanatory style (see section 6.4.1), it may also of impacted on stress by reducing the potential increase. This suggestion is supported by literature pertaining to the nature of CBT training. It would seem logical that if people who had undergone prolonger training aimed at thought control and manipulation (Neenan & Dryden, 2004) would be better at controlling maladaptive thoughts regarding adverse situations.

The fact that levels of optimistic explanatory style fell and perceived cognitive stress rose from placement two to three support the concept within existing literature that there is a link between explanatory style and stress (Gardner et al., 2005; David et al., 2006; Chang, 1998). Previous research has indicated that optimism impacts upon an individual's appraisal process (Lazarus & Folkman, 1984), consequently effecting whether they perceive stress or not, and to what extent. The current study provides no hard evidence to support or contradict this research. It is logical that optimism training may impact on stress via the appraisal process (Lazarus & Folkman, 1984). By changing negative thoughts in this way, participants may alter their appraisal of various situations, either viewing them as less threatening or believing they have the resources to cope with them effectively. However, it is suggested that further research, potentially qualitative based, is required in order to gain a deeper understanding of the relationship between optimism and stress.

A primary aim of the current study was to investigate the presence of a causal component in the association between optimistic explanatory style and perceived stress in student physical education (PE) teachers. The McMaster University

Group (Walsh, 1994) identified four main criteria which must be met in order for researchers to assume an element of causality in the relationship between an independent and dependant variable. Firstly, data must be collated from ‘true experiments in humans’. This means that two similar groups of individuals are, or are not, exposed to the causal factor and are followed for the occurrence of the outcome of interest (Walsh, 1994). The second criterion is the ‘strength of association’ and implies that a causal component is more likely to be present where there is a strong relationship. The third criterion of causality implies the relationship must be demonstrated consistently for there to be a causal element present, and the fourth criterion states there must be a dose response associated with the variables.

Two of the four criteria, gathering evidence from true human experiments and strength of association, were addressed by the study presented in Chapter 5. The pre- test, intervention, post-test design of the current study also complies with the criterion of collecting data from ‘true human experiments’ in that one group was exposed to further optimism training and one group was not, and both groups perceived stress levels were monitored for the duration of the study. The strength of association is not as prevalent in the current study; whilst there are several significant relationships reported some relationships are present via trends in the data. However, it is suggested that the relatively small sample size used in the study may have restricted the ability to identify significant differences. To this extent the small sample size represents an increase in the probability of a Type II error being committed. Furthermore, Hofler (2005) highlights that a strong association is not always indicative of a causal relationship. Sometimes there are strong relationships with no causal factor and

sometimes there will be a causal element present in a relationship that is not strong.

The latter two criteria for assuming causality were not present in the research presented in Chapter Five. Consequently, the aim of the current study was to address these issues by investigating whether the relationship between CBT-based optimism training and perceived stress would be consistent, and whether a dose-response would be associated with this type of training. Specifically the dose response was tested through increasing the amount of optimism training to see if this would further lower levels of perceived stress. Although not in the direction predicted, the current results indicate an optimism-stress relationship exists. As mentioned above, this finding is consistent with that shown in Chapter Five and existing literature (Gardner et al., 2005; David et al., 2006; Chang, 1998). This provides preliminary evidence that there is a consistency in the association between optimism and stress. The current results also somewhat support the presence of a dose response in that the CBT+ group, who received the prolonged and individual optimism training programme reported lower, although not significant, levels of perceived stress and also lower levels of negative affectivity whilst on the practicum element of their PGDE course.

Cognitive Theory states that by changing negative thoughts about a situation, the individual will alter the emotions they experience about that situation. Levels of positive and negative affectivity were measured by the PANAS (Watson et al., 1988) to assess whether prolonged CBT training had an impact on the participant's emotions whilst on placement. The CBT+ group portrayed a slight decrease in Negative Affectivity (NA) during placement three compared to

placement two whilst the CBT group showed an increase. These changes were not significant but the trends are as expected following a prolonged dose of CBT training and support the concepts of Cognitive Theory (Beck, 1995) which suggest that by manipulating our thoughts regarding a specific event we can alter our subsequent emotions. Interestingly, the amount of Positive Affectivity (PA) displayed by both groups during placement three was similar with that displayed during placement two. This may imply that the quantity of CBT-based optimism training experienced did not impact upon the positive emotions experienced during teaching placement. However, the lack of change in this relationship may also be due to the fact that in stressful situations, such as the final placement of the PGDE, individuals may be using their CBT skills to counteract predominantly negative thoughts. This may explain why negative affectivity was alleviated but positive affectivity did not increase. It may be that individuals find the optimism training easier to apply to maladaptive thoughts, or negative events, than to enhancing thoughts which are already positive, or related to positive events. Further research may want to focus on exploring how participants use the skills provided following such CBT-based optimism training, in order to gain a better insight of whether and how such skills are beneficial to individuals.

#### *6.4.3. Explanatory Style and Dispositional Optimism*

A secondary aim of the current study was to explore the potential relationship between how individuals routinely attribute cause to the events in their lives, explanatory style (Ambramson et al., 1978; Seligman, 2006) and the expectations they hold about the future, dispositional optimism (Scheier & Carver, 1985). Results show that although there were positive relationships between both

optimism constructs at placement two and three, these were not significant. Furthermore, results show no change in optimistic disposition following the prolonged CBT-based optimism training. This implies that the training, designed to enhance explanatory style, did not impact upon dispositional optimism. These results provide support for the concept the Scheier & Carver's (1982) optimism is dispositional and therefore stable across time and environmental change.

In Chapter Five it was suggested that if an individual successfully modified their thought processes and was continuously more optimistic in their explanations this would eventually impact upon their outlook, however, being a dispositional characteristic, dispositional optimism may take longer to change. The current results have two potential implications for this suggestion. Firstly, on the surface they appear not to support this hypothesis. They suggest that three months following the initial training there was still no relationship between explanatory style and dispositional optimism. Secondly however, in the current study, there was actually a drop in explanatory style for all groups prior to the commencement of placement three. Therefore, this change in explanatory style may have negatively impacted upon the longitudinal process of altering dispositional outlook. It also suggests that individuals are undergoing a period of change and subsequently are not consistent enough in their explanatory style to change their dispositional outlook. Although they may use the skills, they may be in the process of changing core beliefs, which requires constant skill use and development. Consequently it is suggested that a follow-up study assessing any changes in dispositional optimism following an explanatory style intervention

should take place after a suitable period of time has elapsed in order to allow individuals time to establish, develop and embrace their new explanatory style.

#### *6.4.4. Limitations*

The current study was a continuation of the research conducted in Chapter Five. This longitudinal approach allowed the prolonged assessment of optimistic explanatory style and stress, and optimistic explanatory style and dispositional optimism within a naturalistic environment. However, conducting the research in this way also limited the maximum sample size to those who had successfully completed study 1 (Chapter 5). The experimental group (n=21) used in Chapter Five had to be split in two to form the CBT+ (n=10) and CBT (n=7) groups in order to assess dose response. Furthermore, there were several dropouts from the experimental group prior to the onset of the current study, one due to a prolonged illness and three who chose to withdraw. Of the control group who fully participated in the initial research (n=10), eight individuals chose to continue with the current study. Fortunately there were no further withdrawals during the current research. This lack of withdrawals may have been a beneficial product of conducting continued research as participants knew exactly what to expect in terms of the part they would be required play in data collection and could make a realistic decision as to whether they could, and would, fulfil the role. However, these small samples sizes do present a limitation for the current research and may be the cause of the lack of significant trends within the data. It is argued that certain relationships may have been significant if there had been a larger sample size, and this should be a consideration for future research.

This leads onto a second limitation of the study which is that the discussion is largely based on ‘trends’ in the data produced: findings which were close to significant opposed to actually significant. As mentioned above, the lack of significant findings may have been due to the small samples sizes. Whilst Rosnow and Rosenthal (1989) propose discussing trends is acceptable because the dichotomous nature of significance testing has no ontological basis, it may still be worth future research studies which plan to follow-up with a split-group design consider starting with the appropriate number of participants. The current study was limited in this instance due to the fact that the total number of people undertaking a one year post-graduate diploma of education (PGDE) in Physical Education (PE) limited the maximum samples size. However, one way around this would have been to open up the research to include individuals from PGDEs in different subjects.

A third limitation of the current study was that there was no method of monitoring whether the CBT group were continuing to use the CBT-based optimism skills they learnt during the original intervention described in Chapter Five. In hindsight it would have been beneficial to know whether individuals were still using these skills and how. This could have been done via a questionnaire or short interview, and may have helped to explain why there was so little difference between the level of explanatory style reported by the CBT+ and CBT groups at placement three.

#### *6.4.5. Implications*

Findings from the current study have both theoretical and practical implications for two main areas. Firstly, the results show that although the prolonged optimism training program did not produce the hypothesised increase in optimistic explanatory style, it may have prevented levels of optimistic explanatory style dropping to below baseline measures, as portrayed by the CBT and control group. This implies that, ultimately, the prolonged training was beneficial to student PE teachers. Correspondingly, results suggest that the CBT+ group, who portrayed higher levels of optimistic explanatory style, also reported lower levels of perceived stress and negative affectivity following the prolonged training than the CBT group. This provides theoretical support for the concept that optimistic explanatory style is a causal component in the perception of stress. These findings present further evidence for Lazarus & Folkman's (1984) transactional model of stress, in which the individual's appraisal process is integral to the whether a situation is perceived as stressful. It is suggested that further research is required in order to explore how, or where, optimistic explanatory style impacts upon the appraisal process. Secondly, the current results provide further support for the implication outlined in Chapter Five, that CBT-based optimism workshops would be beneficial as part of a professional skills module within PGDE courses in an effort to prepare student PE teachers against the negative impact which stress had been shown to have on individuals undertaking a one-year subject specific teacher education course (Chambers & Roper, 2000).



#### *6.4.6. Conclusion*

In conclusion, the current research findings suggest that encouraging the use of CBT skills to focus on more optimistic explanation of events is associated with lower perceived cognitive stress levels and negative affectivity in student teachers. This had potential implications for the importance of professional training within PGDE courses. Further research is required to explore whether these skills are as applicable and beneficial once the students are placed in full-time teaching position.

## **Chapter 7**

### **The Perceived Impact of Optimism Training on Stress in Neophyte Teachers**

#### **7.1. Introduction**

The two optimism constructs, optimistic explanatory style (Ambramson et al., 1978; Seligman, 2006) and dispositional optimism (Scheier & Carver, 1985), have both been consistently shown to impact upon the stress process. Individuals with an optimistic disposition have been shown to experience lower levels of stress (Ruthig et al., 2009; Tuten & Neidermeyer, 2004; Scheier & Carver, 1992) and consequently dispositional optimism has been proposed to have a significant stress-buffering effect (Lai, 2009). Individuals with an optimistic explanatory style have also been shown to exhibit less job related emotional distress (Hershberger et al., 2000), less state anxiety following negative feedback (Martin-Krumm et al., 2003) and are less likely to succumb to physical illness when exposed to stress (Jackson et al., 2002). Furthermore, student Physical Education (PE) teachers with a more optimistic explanatory style have been shown to report lower levels of perceived stress whilst undertaking the practicum element of their postgraduate diploma of education (PGDE; Bryant, 2005, unpublished MSc Thesis; Bryant, 2010, Chapter Five, current thesis).

Research has indicated that explanatory style can be reliably enhanced in pessimistic individuals through the use of cognitive behavioural therapy (CBT) based group workshops (Seligman et al., 2007; Gardner et al., 2005; Buchanan et al., 1999; Jaycox, Reivich, Gillham & Seligman, 1994). Consequently, individuals who have participated in such workshops have exhibited significantly

higher levels of optimistic explanatory style and significantly fewer symptoms of depression and anxiety (Seligman et al., 2007), fewer physical illness symptoms (Buchanan et al., 1999) and less work-related stress (Gardner et al., 2005) following the intervention. Furthermore, the skills taught in such workshops are now available to individuals in the form of bibliotherapy (Seligman, 2006). The concept that explanatory style can be effectively changed, and individuals can learn to be more optimistic has led to the term 'learned optimism'.

The results in Chapter Five of the current thesis provide further support for the use of CBT skills to enhance optimistic explanatory style. A four-week learned optimism programme was delivered to student PE teachers over four weekly, one hour group workshops in an attempt to enhance optimistic explanatory style and, subsequently, reduce perceived stress whilst undertaking the practicum, element of their teacher-educator course. Results suggest that using CBT-based skills significantly enhanced learned optimism and was associated with lower levels of perceived cognitive stress and higher levels of positive affectivity whilst on placement. This study has interesting implications for the inclusion of a CBT-based learned optimism course as part of a professional training module on PGDE courses. However, before such an implementation should be made, further research is required in terms of a follow-up study in order to identify whether the intervention produced long-term benefits (Gardner et al., 2005).

Several previous studies within the literature surrounding learned optimism interventions have employed a follow-up measurement within their design (Buchanan et al., 1999; Seligman et al., 2007). Buchanan et al. (1999) monitored the physical illness symptoms of 104 individuals who were identified as being at

risk of developing depression based on their low explanatory style score on the Attributional Style Questionnaire (ASQ: Peterson et al., 1982). Participants initially attended a CBT-based learned optimism training programme consisting of eight two-hour seminars over a period of eight weeks and were then assessed for physical health status for up to 30 months following the completion of the intervention programme. However, this was not the case for all participants, depending on when individuals started the study. Numerous cohorts of college students participated in the study, depending on what year they began studying at the respective university. The follow-up element of the study was conducted at the same time for the entire group of participants, meaning that some individuals had longer time (up to 30 months) between completing the training and producing final measures of physical health. Results show the number of health centre visits was affected by the time the participants entered the study in that the longer the duration between intervention and follow-up health assessment, the fewer visits reported. However, Buchanan et al. (1999) highlight that this is likely due to poorer memory recall over the greater time span. This fragmented approach does not provide reliable follow-up data. Furthermore, Buchanan et al. did not re-measure individuals' explanatory style at the follow-up and therefore there is no evidence of how the CBT-based optimism skills may have decayed over time.

A more recent study using a CBT-based intervention in an attempt to prevent depression and anxiety delivered a programme to 240 students who had been identified as being at risk of developing depression (Seligman et al., 2007). Seligman et al. aimed to monitor depression and anxiety in participants for three years following the training. Whilst this data is currently unavailable, Seligman

et al. do report the findings of a six month follow-up after the completion of the intervention, which involved re-administering self-report measures such as the ASQ. Results show that the workshop group displayed significantly higher levels of optimistic explanatory style and significantly fewer depressive symptoms than the control group both immediately following the intervention and at the 6 month follow-up. These results would imply that CBT-based optimism skills do have a longitudinal effect, both in maintaining a higher level of optimistic explanatory style and in reducing the incidence of depressive symptoms, in college students. Further support for the longitudinal effect of CBT-based optimism skills comes from the fact that CBT skills take time to learn and become more proficient with time and practise (Neenan & Dryden, 2005). Gardner et al., (2005) identified the need for a follow-up design when investigating the use of CBT-based intervention programmes as a means of stress management training for NHS employees. They monitored general health, ways of coping and appraisal processes pre and post training and at a three month follow-up point. Results show that improvement at the follow-up was greater for individuals who had participated in the CBT intervention. Gardner et al. suggest that these individuals continued to put the cognitive skills into practice over this time. This however, could not be confirmed due to the purely quantitative methods employed.

These findings would suggest that the CBT-based optimism skills continue to be effective in elevating optimistic explanatory style and reducing the negative effects of depression and stress. However, both the Buchanan et al. (1999) and Seligman et al., (2007) studies were conducted with population samples selected due to their predisposition to develop depression, and as such are not

generalisable to the overall population. The study reported in Chapter Five produced new research by exploring the effect of optimism interventions on individuals who were not pre-selected due to their low explanatory styles and subsequent susceptibility to develop depression. Therefore, it is important to determine whether there is a decay effect associated with the skills when they are not being used in a preventative manner. Furthermore, both Buchanan et al. (1999) and Seligman et al. (2007) conducted a follow-up study by re-distributing self-report measures, and collecting purely quantitative data. It is suggested that a follow-up should not only assess quantitative measures but explore whether and how the skills have developed, how they are used and whether they have been perceived to be effective. For example, a follow-up may explore whether an individual's ability to implement the skills has developed. In 2002, Gould, Deffenbach & Moffett conducted a study designed to examine psychological characteristics, and their development, in Olympic champions. Although theirs was not an intervention-based follow-up study, it had the similar aim of exploring the development and use of psychological skills. Gould et al. stipulate that in order to examine the development of psychological talent, a more exploratory study is required and proposed that qualitative data, in the form of interviews should be used as a means of triangulating against quantitative measurement of the various psychological skills. The approach adopted by Gould et al. (2002) provides a useful example of a methodological framework well suited to conduct an in-depth follow-up study designed to assess the development and use of psychological skills which have been previously manipulated.

Given the individual nature of CBT skill development, and the subjectivity and variation of each neophyte teacher's work environment, it is argued that a qualitative approach is required in order to gain a fuller understanding of the longitudinal effectiveness of the CBT-based optimism skills delivered throughout the studies reported in Chapters Five and Six. Qualitative data in context rich and as such, utilising a qualitative approach will facilitate the collection of in-depth data pertaining to individual's current use of optimism skills in specific and meaningful situations. It will allow an insight into the participant's perceptions of how useful and effective they believe the skills to be, both during training and full-time work and as such will strengthen the over-arching research study presented in the current thesis, investigating whether CBT-based optimism training is an effective tool with which to combat teacher stress. Adopting a qualitative approach will also allow the research to answer the question of how such skills are used and whether or not they develop with the individual.

Previous intervention follow-up studies have re-evaluated the impact of the intervention within the same environment in which it was delivered. Buchanan et al. (1999) and Seligman et al. (2007) conducted follow-ups whilst participants remained students at the same university. If CBT-based optimism skills were to be implemented as part of professional training, their use and impact must be monitored within that specific vocational environment. The studies presented in Chapters Five and Six assessed the impact of a CBT-based optimism training intervention on perceived stress in student teachers during the practicum element of their PGDE course. The current study presents an opportunity to enhance that research by assessing the impact of the intervention on neophyte teachers as they undertake their probationary year of teaching full-time. It is suggested that this

will identify whether the optimism skills were only useful during the teacher-education phase of learning, or whether they continue to be effective in a full-time occupational setting. Consequently this will provide a greater insight into the effects of optimism training 12-months post-intervention.

#### *7.1.1. Research Aims*

The current study has several aims. Firstly, the current study aims to investigate the longitudinal effects of CBT-based optimism training on stress. Furthermore, it aims to assess such effects in individuals who are not at risk of developing depression. Secondly, the current study will provide a more in-depth insight into the perceived effectiveness and applicability of the optimism skills by those who used them. Finally, the current study aims to continue monitoring the association between explanatory style and dispositional optimism. Consequently, the current study employs a parallel mixed methods approach, utilising self-report measures to determine on the levels of explanatory style and dispositional optimism at follow-up, and interviews in order to explore the development, use and perceived effectiveness of the skills by teachers in their first year of full-time work.

### **7.2. Method**

#### *7.2.1. Participants*

Participants for the current study were recruited from the 25 student Physical Education (PE) Teachers who participated in the prior two research studies assessing the effectiveness of CBT-based optimism training on reducing stress



whilst on teaching placement (see Chapters 5 & 6). Five participants were randomly selected, using a computer-selection programme, from each of the three groups present in Chapter 6: the CBT+ group, who received the prolonged CBT-based optimism training; the CBT group, who completed only the workshop phase of optimism training; and the control group, who received no optimism training at any point during their Postgraduate Diploma of Education in PE. Subsequently, 15 individuals who were currently undergoing their probationary year in teaching were asked to participate in the current research study. Of these, five agreed to participate (3 males and 2 females), three from the CBT+ group, one from the CBT group and one from the control group.

#### *7.2.2. Measures*

The current study employed a parallel mixed methods design meaning interviews (see section 7.2.3. for more detail) and self-report questionnaires were used in tandem to assess participants' levels of explanatory style, dispositional optimism and teaching related self-efficacy. To enable direct comparison with earlier levels the measurement tools utilised in the current study were those also used in Chapters 5 and 6. A brief recap on each tool is provided below, for full details please see Chapter 5, section 5.2.2.

*Explanatory Style Optimism:* The Attributional Style Questionnaire (ASQ: Peterson et al. 1982) was used to measure explanatory style. The ASQ presents 12 hypothetical events: six positive and six negative. For each event, the participant is required to state a cause and then rate this cause on a seven point scale for each of the three explanatory style dimensions: internal/external,

stable/unstable and global/specific. The ASQ produces nine scores: an individual dimension score for positive and negative events, a composite score for the explanatory style of good events, a composite score for the explanatory style of negative events and a total composite score for explanatory style. These composite scores have been shown to yield high levels of internal consistency (Peterson et al. 1982). Research has also shown that the ASQ has high construct validity (Peterson et al., 1982) and is a reliable measurement to be used when assessing explanatory style over a prolonged period of time (see Chapter 3).

*Dispositional Optimism:* The Life Orientation Test (LOT: Scheier & Carver, 1985) was employed to measure dispositional optimism. The LOT presents 12 statements (four positive, four negative and four filler items) and the participant is required to rate, on a four point scale, the extent to which they agree with each statement. And overall optimism score is derived by discarding the filler items, reversing the negative statement scores and summing the remaining eight items. Scheier & Carver (1985) report that the LOT has an acceptable internal consistency rating with a Cronbach's alpha of 0.76.

*Self-Efficacy:* The Teacher's Sense of Efficacy Scale (TSES: Tschannen-Moran & Woolfolk Hoy, 2001) was used to assess self-efficacy in the classroom. Participants are presented with 24 statements relating to teachers capabilities in the classroom and asked to indicate how much control they have over each statement in a classroom, on a nine point scale (1 = nothing to 9 = a great deal). The self-report tool produces a total self-efficacy score along with three sub-scales for efficacy in student teaching, instructional strategies and classroom

management. The TSES has been shown to have a strong reliability when administered to pre-service teachers (Tschannen-Moran & Woolfolk Hoy, 2001).

### *7.2.3. Interviewer and Interview Procedure*

The same interviewer conducted all five interviews. Training for the interview segment of this study included reading qualitative interviewing technique and data collection books (e.g., Breakwell, 1990; Banister, Burman, Parker, Taylor & Tindall, 1994) and conducting a pilot study which was recorded, transcribed and critiqued by a senior colleague who was an experienced researcher in psychology. This process of preparation conforms to the procedure adopted by Gould et al. (2002a). Interview guides (see Appendices 27 and 28) were used to standardise all interviews across participants and to minimise bias (Gould et al., 2002a). These guides were developed based on the literature surrounding explanatory style (Ambramson et al., 1978; Seligman, 2006) and were evaluated by an experienced psychologist for face validity, appropriateness and clarity in relation to the study area and research questions. The interview combined a semi-structured and critical incident approach (Endacott, 2005). At the beginning of the interview, pre-determined open ended questions were used to ask participants about their teaching careers so far and general stressors at work. The second half of the interview employed a critical incident approach and asked participants to recall two specific events, one positive and one negative, which had occurred at work. Pre-determined open ended questions were then used to explore the way in which participant's attributed meaning to these events. Positive and stressful events were examined in order to assess participant's explanatory style of both good and bad events. Prompts and probes were used throughout the interview in

order to encourage participants to expand on their responses and to help clarify meaning and understanding of those responses (Endacott, 2005). Finally, participants who had received the CBT-based optimism training were asked a number of more quantitative-based questions in which they were asked to rate out of ten the perceived effectiveness and applicability of the optimism skills in a full time educational environment.

#### *7.2.4. The Probationary Teaching Year*

All participants in the current study were undertaking a probationary year of teaching following completion of the one-year subject specific Postgraduate Diploma of Education (PGDE). Students graduating with a teaching qualification from a Scottish University are guaranteed a one-year teaching post under the Teacher induction Scheme. This allows probationer teachers to be considered for full registration with the General Teaching Council for Scotland (GTCS) within one school year. Neophyte teachers undertaking this probationary year are required to teach approximately two thirds the amount of full-time teachers, leaving dedicated time for professional development within the role. Individual's also have access to an experienced teacher who is nominated as their probationer support. This course provides an ideal opportunity to monitor the participants during their transition from student teachers to full-time probationary teachers. Despite the probationary stance of the scheme, participants will be consistently placed in everyday teaching scenarios, reflective of those faced daily by experienced teachers. This will facilitate the assessment of how effectively participants are using the CBT-based optimism skills outside of the more clinical university environment.

#### *7.2.5. Procedure*

The current study was conducted in February to March 2010, eight months following the completion of their PGDE and 12 months after the completion of the CBT-based optimism training programme, delivered in December-January 2009. At this time participants had been teaching full time for six months whilst undertaking their probationary year of teaching which follows the one-year PGDE. On completion of the PGDE year (July 2009), individuals who had participated in the studies reported in chapters five and six were reminded that the ongoing project involved a third phase which would require being interviewed in six-months time. At this point participants were asked if they would be willing to be contacted regarding this when the time arose. In January 2010, participants were then approached via individually addressed emails and asked if they would be willing to participate in the final phase of the research project. Individuals were informed that participation would involve completing a 50 to 60 minute interview and several self-report measures. If participants failed to respond to this, a second email was sent out and a telephone call was made to the individual in question. This was done in an attempt to cultivate the largest sample size possible. Furthermore, participants were informed that the interview would be arranged for a time and place totally suited to their convenience in order to minimise disruption to their everyday lives. Individuals who agreed to participate were subsequently contacted by the research to arrange a date and time. In the two days leading up to the interview the self-report measures were emailed to the participants in order for them to complete them and hand them back into the researcher at the beginning of the interview. Quantitative data

regarding explanatory style, dispositional optimism and self-confidence, collected at the final practicum element of the participants' PGDE course (reported in Chapter Six) was used as a baseline measure to which the current measures could be compared.

#### *7.2.6. Data Analysis*

Data collated via interviews was analysed using a content analysis approach which involved deduction, induction and verification. Such a method is common in sport psychology literature and is used to distil information from large amounts of data in order to present such data in a way that is amenable for peer dissemination (Biddle et al., 2001). The aim of the analyses was to interpret the meaning of the phrases used by participants in response to the questions posed by the researcher, opposed to focusing on the frequency of words or phrases used (Krippendorff, 1980). All interviews were recorded, transcribed and content analysed adhering to the following procedure. Firstly the transcripts were read and re-read in order for the researcher to become familiar with the participant responses, gain a better understanding of the data and begin to identify any obvious themes emerging. The raw data responses (quotes representing a meaningful point or thought) were identified and coded using the ATLAS Ti 4.2 computer software.

Adopting the method of analysis employed by Gould et al. (2002), these raw data codes were then organised into groups sharing similar meaning. This grouping procedure was repeated to form subthemes, higher order themes, and the most global grouping, umbrella categories. Initially themes were identified using a

deductive approach in order to assess how individual's explanations corresponded to the guidelines for optimistic and pessimistic explanatory style of good and bad events as identified by Ambramson et al. (1978) and Seligman (2006). However, whilst doing this, additional themes which emerged from the data, which were not necessarily related to explanatory style were noted and coded.

Results were triangulated by a secondary researcher, independent to the earlier stages of the study and not knowing the participants, in order to establish a level of dependability of the data analysis (Endacott, 2005). This individual had experience as teacher and teacher-educator, and was also an experienced qualitative-based researcher. The secondary research was not involved in the earlier research studies (see Chapters Five and Six), or the development of the interview guides and procedures, and as such had an unbiased view towards the data. Each researcher read and thematically analysed the data separately and then met to reach a level of consensus validation of specific and general themes (Kamin, et al., 2007; Gould et al., 2002).

The statistical package SPSS was used to analyse the quantitative data that was generated by the self-report measures. Due to the small sample size and the fact that there was only one participant from the CBT and control groups, it was not possible to conduct comparative statistics in order to explore differences in mean changes. Instead, total ASQ samples for each participant were studied in order to observe any change in explanatory style from the baseline measure, taken at placement 3, to the follow-up point 12-months later. A Pearson's  $r$  test for

correlation was conducted on the CBT+ group in order to explore the potential relationship between explanatory style and dispositional optimism.

### 7.3. Results

#### 7.3.1. Quantitative Assessment of Explanatory Style

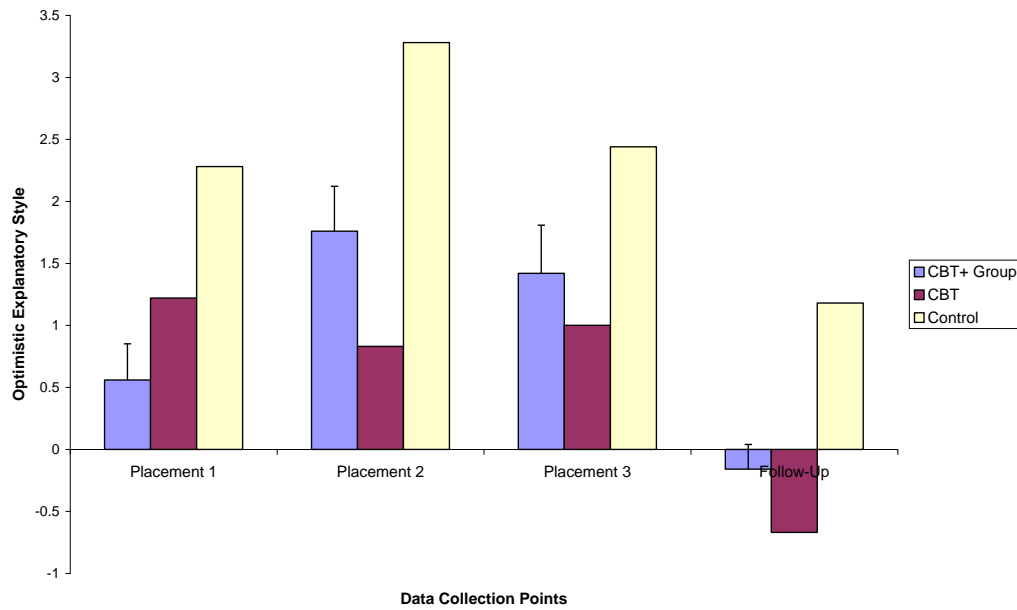
Due to the small overall sample size and the fact that only one participant agreed to be interviewed from the CBT group and one from the control group, it was not possible to conduct comparative statistical tests on the mean data. However, in an attempt to portray changes in explanatory style from baseline (placement 3) to follow up, participant total-ASQ scores are presented in Table 7.1.

**Table 7.1:** Mean level of explanatory style reported by the CBT+ group and the individual from the CBT and control groups, at placements one, two, three and at the six-month follow-up point.

	<b>Placement One</b>	<b>Placement Two</b>	<b>Placement Three</b>	<b>Follow-Up</b>
<b>CBT+ Group</b>	0.56	1.76	1.42	-0.16
<b>CBT Group Participant</b>	1.22	0.83	1	-0.67
<b>Control Group Participant</b>	2.28	3.28	2.44	1.18

As can be seen, all participants portrayed a drop in optimistic explanatory style over the 12 months following completion of the prolonged CBT-based optimism intervention. Figure 7.1 portrays how the levels of explanatory style changed throughout the longitudinal study, from placement one to the follow up, 15 months later.





**Figure 7.1:** Changes in explanatory style over the PGDE (placements one, two and three) and follow-up measurement points, for the CBT+ group (n=3), the CBT individual and the control group individual.

Statistical analysis was used to explore the potential relationship between explanatory style and dispositional optimism within the CBT+ group (n=3). A Pearson's r test for correlation highlighted a significant positive correlation ( $r = 1.000$ ,  $n = 3$ ,  $p = 0.008$ ) between the explanatory style and optimistic disposition of the CBT+ group.

### 7.3.2. Qualitative Assessment of Explanatory style and Stress

The following section presents the subthemes, higher order themes and generalised categories, relating to optimism and stress, which emerged from the content analysis of the raw data. Firstly, themes which emerged from the CBT+ group (n=3), who had previously received the prolonged CBT-based optimism training are presented. Secondly, themes that emerged from the individual from the CBT group, who received only the initial CBT-based group workshops are

presented and finally themes which emerged from the individual from the control group (n=1), who received no CBT-based optimism training, are presented. The umbrella categories which emerged from the interviews are presented in Table 1.

**Table 7.2:** *The umbrella categories which emerged from the raw data provided by the CBT+ group (n=3), who received the prolonged CBT-based optimism, an individual from the CBT group, who had received the CBT-based workshop optimism training, and an individual from the control group, who had received no optimism training.*

CBT+ Group	CBT Group	Control Group
Optimistic Explanatory Style		Optimistic Explanatory Style
	Explanatory Style	
Skill Use & Development		
	No Conscious Skills Use	
Emotional Impact	Emotional Impact	Emotional Impact
Stress Reducing Factors from the PGDE to Now	Stress Reducing Factors from the PGDE to Now	Stress Reducing Factors from the PGDE to Now
Stressors	Stressors	Stressors
Optimism Skills Minimise Stress		
		Coping
Future Expectations		
	Uncertainty about the Future	
		Planning for Negative Outcomes
Buy In		

### 7.3.3. Optimism and Stress following the Prolonged CBT Training

Content analysis of the raw data from three participants from the CBT+ group was grouped into 27 subthemes, 15 higher order themes and eight overall categories: 1) Optimistic Explanatory Style; 2) Skill Use and Development; 3) Emotional Impact; 4) Stress Reducing Factors from the PGDE to Now; 5) Stressors; 6) Future expectations; 7) Optimism skills minimise stress; and 8) Buy In. The umbrella categories, their respective higher order themes and subthemes are displayed in Figure 7.2. Each of the categories and higher order themes are discussed below.

*Optimistic Explanatory Style.* All three participants who were interviewed from the CBT+ group demonstrated a highly optimistic explanatory style. Both the higher order themes in this category, *optimistic explanatory style of good events* and *optimistic explanatory style of bad events*, contained responses from all three participants. Specifically the raw data responses indicated that all participants regularly *attributed positive events to internal causes*. One participant described her explanation for why an extra-curricular activity had gone particularly well:

“They had a really good day out, really enjoyed the race and seeing how it all runs and, you know, they wouldn’t have had that opportunity if I wasn’t able to introduce them to rowing.”

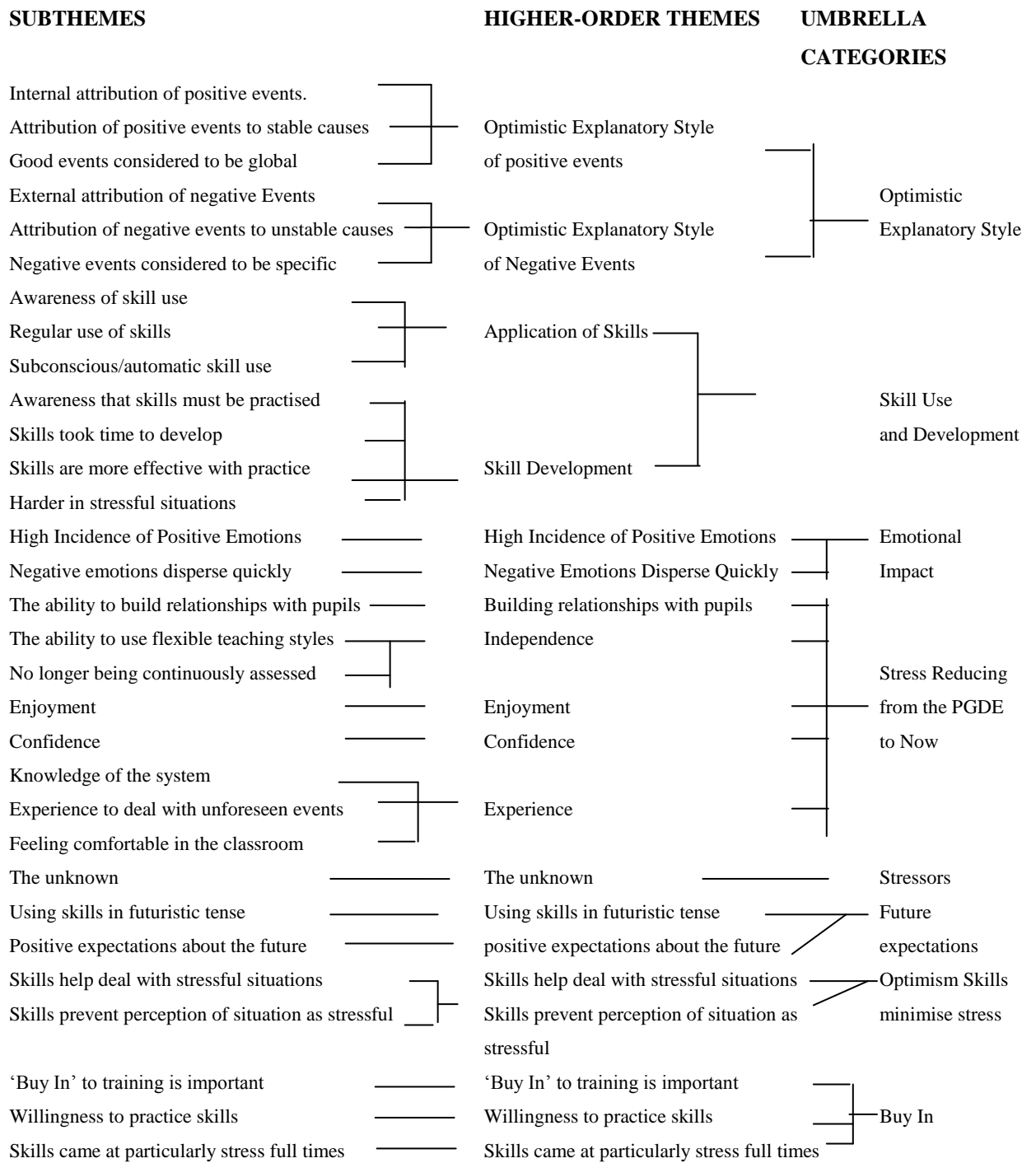
(Participant 2)

Furthermore, all participants attributed *positive to events to stable causes*, believing they would be present again in the future and considered the *causes for positive events to be global*. The same participant commented on how these explanations had influenced her beliefs about similar events in the future:

“I’ll just look forward to them (the trips) a lot more and it’s easier to motivate them (the pupils). They’re already signing up for more stuff, so it must be going well.” (Participant 2)

All three participants provided raw data responses that were grouped into the subtheme categories: *attribution of negative events to external causes*; *attribution of negative events to unstable causes*, indicating participants felt the negative situations would not be present regularly; and *attribution of negative events to specific causes*, reflecting that participants did not let the negative events influence other areas of their work. One participant spoke of a negative situation which occurred in one of his classes:

“Well I just kind of think it’s a weird situation, not a day to day type scenario I’m going to have to deal with in every class or anything like that.” (Participant 1)



**Figure 7.2:** Umbrella categories, higher order themes and subthemes generated from the optimism and stress interviews conducted with the CBT+ group (n=3).

The *Cognitive Skill Use and Development* category was comprised of data responses from all three participants. Raw data from all three participants was coded to produce the higher-order themes *application of the skills* and *skill development*. One participant described a noticeable change in her skill use:

“I would say that that probably the main turning point from me that I took from everything we did last year, and everything I’ve done throughout this year, that, you know, it’s doesn’t always make me a bad teacher, it’s not always my fault. A lot of the time last year I attributed it to being my fault, and that’s a positive change I think that I’ve made” (Participant 3)

All three participants spoke of an *awareness of skill use* and *regularly skill use*. Two of the three participants felt that they used the skills in a more *subconscious/automatic* way, one spoke of how she felt she used the skills currently:

“I’ve done bits before that I wasn’t really thinking about, it’s just what I did. Whereas before (last year) in the initial stages I was always thinking ‘I can’t think like that, I should be thinking the other way’. But it’s not as obvious as that now, it’s more of an adaptation response than a slow obvious process.” (Participant 3)

All three participants reported that the skills had taken *time to develop* and had to be *practiced*, and had become *more effective the more they were used*. One participant felt they were *harder to use in the more stressful situations*:

“I’d say it depends on the situation, I think the more stressful the situation, sometimes it’s not as effective, like for example before I started at the school I was really nervous and I was trying to do all

that stuff and it worked, but it still niggled away a bit. I just need to improve it in really stressful situations.” (Participant 1)

*Emotional Impact.* The third umbrella category, *Emotional Impact*, also contained data responses from all three participants. Responses from all participants were grouped into the subtheme *high incidence of positive emotions* which reflects how participants spoke of feeling happy and generally positive for the majority of the time. Raw data responses from two of the participants were grouped into the subtheme *negative emotions quickly dispersed following a negative situation*. One participant spoke about how an incident which occurred in her last lesson of the day affected her emotionally.

“When I came out of the lesson I was about ready to explode. But I had an after school-club, so I focussed on that instead and by the time I got home I wasn’t wound up at all.” (Participant 3)

*Stress Reducing Factors from the PGDE to Now.* Within all three interview transcripts there were raw data responses which referred to factors that made teaching full time less stressful than their experiences whilst on the practicum element of their PGDE. This category of Stress Reducing Factors was created from grouping together six higher order themes. The first higher order theme, *the ability to build relationships with pupils*, contained raw data responses from all three participants. One individual spoke of how being able to build relationships with pupils affected their work:

“I know all the kids names from S1 to S4 because it’s such a small school. I have a really good rapport with the kids and it’s just made everything so much easier.” (Participant 3)

The second higher-order theme, independence, contained raw-data responses from all three participants and was created from two subthemes relating to assessment: *the ability to use flexible teaching styles*, and *no longer being continuously assessed*. In another higher order theme, *enjoyment*, raw data responses from two participants were grouped relating to their enjoyment of being in the profession full time, whilst the higher order theme of *confidence* contained raw data responses from all three participants.

The sixth higher order theme within the *Stress Reducing Factors from the PGDE to Probation Year* umbrella was *Experience*. This theme contained raw data responses from all three participants, and consisted of five subthemes (see Figure 7.2).

*Stressors*. The Fifth umbrella category of *Common Stressors* consisted of two higher order themes and raw data responses from all three participants. The first higher order theme, *The Unknown*, contained raw data responses from all three participants and related to stress regarding situations which were new and dissimilar to any prior experience, including teaching pupils they hadn't met before. One participant explained why she had found teaching primary school children for the first time stressful:

“It was more the unknown. They were so little and it was an activity I'd never taught before.” (Participant 2)

One participant explained why a regular class was somewhat stressful:

“They do it in a really weird way, you don't get a class you teach regularly in fourth year, they split the girls and the boys and then split them again, and you don't know really which group you're going to get, or what equipment you're going to have until you're there and



it's all happening. So one time I was prepped to take boys football, but I ended up with girls netball and it threw me because I hadn't prepared and I'd not really taught netball before." (Participant 2)

*Future Expectations.* The Sixth umbrella category, *Future Expectations*, contained two higher-order themes. The first, *using the skills in a futuristic tense*, contained raw data responses from all three participants and pertained to statements in which the participants displayed using the skills to minimise the stress of an upcoming event. One participant described how he uses the skills when considering future events such as getting a job:

"I can be a wee bit pessimistic about that, like saying 'oh I'm never gonna get a job'. So I use them for that too, it just makes it more positive." (Participant 1)

The second higher order theme contained within the category of *Future Expectations*, is *positive expectations about the future* and contains raw data responses from all three participants. All participants reported positive feelings about their future and the expectancy that things will go well, with one stating that:

"I think I am generally more positive in outlook now. Instead of looking negatively at something I'm not looking forward to, instead of worrying about it I now just think 'oh well, everything else has gone well so there's no reason this should be any different'". (Participant 2)

*Optimism Skills Minimise Stress.* The seventh umbrella category, *Optimism Skills Minimise Stress*, contains raw data responses from all three participants

which refer to the impact the skills have on how they deal with potentially stressful situations. All participants reported using the skills in a way which alleviated or prevented perceptions of stress. One participant described how a potentially stressful situation was turned into a positive situation through use of the CBT-based skills:

“Say like whenever a class isn’t going well, like the rackets lesson which went wrong, that could’ve been a disaster, if I’d been negative and thought ‘that’s horrendous because they didn’t do what I had set out to do’ but I just kind of thought, ‘don’t even... that’s not even worth thinking about, just get on and do something else’ and in the end they ended up really enjoying it and so did I.” (Participant 2)

*Buy In.* The seventh and final umbrella category is *Buy In* and is a grouping of three higher-order themes. The first higher order theme, *Buy In to the Training*, contained raw data responses from two of the three participants, with one stating:

“I really bought into it because I remember sitting in the workshop with you and saying ‘I’m really pessimistic’.” (Participant 1)

The second higher order theme, *A Willingness to Practice the Skills*, contained raw data responses from only one of the three participants. However, the third higher-order theme, *Skill came at Particularly Stressful Times*, contained raw data responses from all three participants. Each participant made reference to the fact that the skills had been delivered to them at a time in which they felt particularly stressed. One participant explained that:

“I think at the time I met you I’d had a really bad placement, so the timing of this (optimism training) seemed to fall perfectly for me for

when I really needed to start thinking more positively and seeing things in a better way.” (Participant 2)

Whilst another participant stated:

“I think it (optimism training) came at a really good time for me to do that, um I went through quite a stressful time on my PGDE um ... and it’s just nice now not to be that stressed.” (Participant 3)

#### *7.3.4. Optimism and Stress following only the Initial CBT-Based Training Workshops*

Content analysis of the raw data gathered from the individual participant who agreed to be interviewed from the CBT group was grouped into 25 subthemes, which were in turn grouped into 17 higher order themes. Related higher order themes were then combined to create six overall categories: 1) Optimistic Explanatory Style; 2) Emotional Impact; 3) Uncertainty about the future; 4) No skill application; 5) Stress Reducing Factors; and 6) Stressors (see Figure 7.3). Each of the categories and higher order themes are discussed below.



**Figure 7.3:** Umbrella categories, higher order themes and subthemes generated from the optimism and stress interview conducted with a participant from the CBT group, who had only received the group-delivered CBT-based optimism training workshops.

*Explanatory Style.* The participant who had received only the workshop delivered CBT-based optimism training portrayed a low to moderate level of explanatory style. The first higher order-theme which was grouped to form the umbrella of *Explanatory Style* was *Moderate optimistic explanatory style of positive events*. This higher-order theme contained raw data responses which were grouped into subthemes and indicated that the individual *attributed positive events to predominantly external factors*, often suggesting that someone else was the cause of its occurrence, *attributed positive events to global factors*, meaning they would be present in other area of work and life, and *attributed positive events to unstable factors*, implying they would not be present in the future. The second higher-order theme was *Low optimistic explanatory style of negative events*. Raw data responses were grouped into subthemes which suggested the participant *attributed negative events to internal causes initially*, meaning at the time of the event and for a period of time afterwards the participant believed themselves were responsible. The participant explained his thought process when a class was halved in time because a couple of students forgot their kit:

“It’s one of those thoughts which goes through your heads, you think actually that was my fault. And that went through my head when I was teaching later on, I though you know I could maybe have made that a bit better and maybe gone a bit easier on the girls.”

However, with hindsight the participant *attributed negative events to external causes*:

“Oh it was the girls, thinking about it now, and they knew that as well.”

Further subthemes included the *attribution of negative events to global causes*, believing they would be present in other situations.

*Emotional Impact.* The second umbrella category which emerged from the raw data was Emotional impact and related to participant's emotions regarding events and their duration. The first higher-order theme, *Negative emotions from negative events last all day*, was grouped from two sub-themes, *bad events prompt negative emotions*, and *negative emotions last all day*. The participant was describing a specific negative events and it's affect on him:

“Angry, upset, generally pee-ed off. Yeah, just that kind of feeling, you know when you just can't believe something's happened and you're just taken aback by it. And that affected me until my next lesson to be honest. Um, I was actually late for my next lesson because I was just having a moan to one of my other colleagues.”

The second higher-order theme, *positive emotions from good events last all day*, contained two sub-themes, *good events prompt positive emotions* and *positive emotions last all day*. The participant spoke of how a positive event in one of his lesson affected him:

“I was just ... over the moon. You know it's just one of those feelings you can describe, just phenomenal.”

*Uncertainty about the Future.* The third umbrella category that emerged from the CBT-group participant interview was *Uncertainty about the future*, and contains raw data responses which pertained to hopes and uncertainty about future events opposed to beliefs. One of the higher-order themes which was grouped into this category was *Lack of control over events*, and included the subthemes *hopeful that good events would recur*, and *hopeful the negative events would not recur*. This higher-order theme represents a lack of control over the causes of events in

the future. The second higher-order theme to emerge from the raw data responses was *never know what will happen*, and reflected raw data responses which described an uncertainty over how future events would manifest. In the following excerpt the participant describes his thoughts about how his handling of a behavioural incident would impact on the future, and whether that event will recur:

“Well I hope that the message got through, so I’m hopeful that it won’t happen again”.

*No Skill Application* was the fourth umbrella category to emerge from the current interview. Raw data responses were combined into the subthemes *no awareness of using the skills at work*, and *no application of the skills outside of work*.

“To be honest, I don’t think I used them in either of those situations.

In general maybe I’m aware of them but I don’t think I’ve consciously thought about using those skills”.

These subthemes both emerged from open questions and direct questions throughout the interview. They were subsequently grouped together to form the higher-order theme *no application of the skills*. The second higher-order theme grouped in this category was *little recall of the skills*, and related to the fact that whilst the participant remembered the workshops, the individual couldn’t recall the specifics of the skills delivered. At one point the participant asked the researcher:

“What skills, what were they again?”

*Stress Reducing Factors from the PGDE to Now*. The fifth umbrella category to emerge from the raw data was *stress reducing factors from the PGDE to now* and related to factors which made teaching full time less stressful than the practicum

element of the PGDE. Grouped under this category was the higher-order theme *ability to build relationship with the pupils*. This refers to raw data themes in which the participant explained how important it has been to have the time to build relationship with pupils at the school:

“Building relationships with your class is so important, um on placement it’s hard to do that, you’re only just learning the names of the kids by the end of the block, and you know building relationships is so important for the teaching and learning. I’d say you probably can’t deliver a good class if you don’t get on with the kids.”

The second higher-order theme grouped within the stress reducing factors umbrella was *flexibility to use different teaching styles*. This emerged from raw data responses referring to the ease of being able to teach in your own style, or try out new styles rather than teach in a way that suits an assessor. The third higher-order theme was *organisation*, referred to having a bit more time to be able to plan and organise for lessons:

“It just makes things so much easier, if you’re not organised everything’s kind of buzzing around your head and you don’t have a clear picture of what you want to achieve.”

The fourth higher-order theme, *Experience*, contains three sub-themes. The first, *dealing with behaviour became easier with time*, refers to the concept that incidents or tasks which posed some stress to begin with have become less stressful with time spent in the job. The participant also talks about how he has learnt from his more experienced colleagues:

“Behaviour management, I found at the beginning not very good, but as six months went on, with a lot of help from my colleagues, they’ve helped me kind of progress in that.”



*Stressors*. The sixth, and final, umbrella category, *Stressors*, is grouped together from three higher orders and relevant subthemes which emerged from raw data responses which referred to situations or stimuli that the participant finds stressful whilst teaching full time. The higher order themes included in this category include *managing behaviour*, *parents' evenings* and *a never ending to do list*.

“I like getting things finished but here you can never do that, there's always something that crops up so your list doesn't end, and I was getting a bit stressed out having to keep going with things and the list never ending.”

The participant explained how parents' evenings evoked a strong reaction in him, but he couldn't explain why he found them so stressful:

“I don't know, It's just the anxiety of, I don't know, that's the thing! I really enjoy them by the end but it's just that anxiety thing, before it's just like eeeeeerrrr!”

#### *7.3.5. Optimism and Stress following no CBT-based Optimism Training*

Content analysis of the raw data gathered from the individual participant who agreed to be interviewed from the control group was grouped into 28 subthemes, which were in turn grouped into 15 higher order themes. Related higher order themes were then combined to create six overall categories: 1) Optimistic Explanatory Style; 2) Emotional Impact; 3) Stress Reducing Factors; 4) Stressors; 5) Coping; and 6) Planning for Negative Outcomes (see Figure 7.4). Each of the categories and higher order themes are discussed below.



**Figure 7.4:** Umbrella categories, higher order themes and subthemes generated from the optimism and stress interview conducted with a participant from the control group, who had received no CBT-based optimism training during the PGDE.

*Explanatory Style.* Only one participant from the control group agreed to partake in the current study. Within the interview the participant portrayed a moderate level of optimistic explanatory style. Raw data responses were grouped together to form two higher-order themes under the explanatory style umbrella category. The first was *optimistic explanatory style of good events*, and contained subthemes which suggested the participant *attributed good events to internal causes, attributed good events to stable causes, and believed the causes of good event to be global*. The second higher-order theme, Moderate optimistic explanatory style of negative events, refers to the fact that some of the participant's attributions were optimistic and some not. Subthemes included *initial internal attribution of negative events, external attribution of negative events in hindsight, attribution of negative events to unstable causes, and attribution of negative events to global causes*. The participant spoke about a negative event saying:

“There's the initial feelings of stress associated with the event, you blame yourself for that so you're disappointed in yourself that you let the situation get to that and you think 'well I should've nipped that in the bud right away.'”

*Emotional Impact.* The second umbrella category which emerged from the raw data responses was *Emotional Impact*. This category contained raw data responses which referred to the emotional impact of negative events and its duration. Raw data responses were grouped into three subthemes and two corresponding higher-order themes. The first, *negative emotions from negative events last all day*, reflects how negative emotions result from negative events

and stay prominent for the rest of the day. At one point during the interview the participant explained his response to a negative event:

“It was just that general feeling of frustration and ... maybe upset a little bit that it had happened, and you maybe go away and tell people about it. If I’m being honest I don’t think I leave it at school particularly well.”

The second higher order theme, *positive events prompt positive emotions*, refers to raw data responses which portrayed awareness of positive emotions immediately after a good events has occurred, but there was no evidence of their duration.

*Stress Reducing Factors from the PGDE to Now* was the third umbrella category to emerge from the raw data. It reflects factors which have either changed or developed since the PGDE which make teaching full time less stressful. This category contains three higher-order themes. The first, *building relationships with pupils*, refers to the fact that there is more time when teaching full time to get to know the pupils better. The second higher-order theme is the *ability to use flexible teaching styles*, and reflects a feeling that teaching is less stressful teaching when you can embrace your own style and not teach in a way that suits others:

“Now it’s your class and you’re students and you basically teach them the way you want to teach them, and other people do have control over that to an extent but I think the freedom of being able to work with children the way to want to work with them and not conform to stereotypical teaching styles has been one of the nice things about this year.”

The third higher-order theme, *control*, contains five subthemes which all reflect raw data responses associated with maintaining an element of control within the vocation including being organised, preparing for lessons, gathering as much information as possible about pupils prior to the class, quickly establishing authority with the kids and establishing a reputation within the school.

*Stressors*. The fourth umbrella category that emerged from the raw data was *Stressors*, and referred to situations which caused stress for the participant. This category contains three higher-order themes and eight subthemes. The first higher-order theme, *Responsibility*, contains three subthemes which reflect raw data responses pertaining to higher levels of stress now that the participant is teaching on their own. The first subtheme in this group was *Independence*. The participant explained how he perceived having to teach by himself:

“When you’re on placement there’s always another teacher there with you at all times. So I think a lot more of the time they make things a lot easier for student teachers. But now at the start when the doors close it’s just you versus the kids and you exert your control the best way you see fit but there are a lot of very real situations to deal with on your own.”

The second subtheme was *responsibility*, and reflects themes of pressure regarding responsibility for the pupils but also a responsibility to maintain standards such as grades. The third sub-theme within the *Responsibility* grouping was *time management*. The participant explained how having to teach on his own had made this more of a stressor for him:

“Time management becomes a lot more of an issue because when you’re training you’ve always got someone looking over your

shoulder reminding you you've got this much to do and this much time, and this is what you've got to prepare for tomorrow, whereas there's just a lot more responsibility now.

The second high-order theme under the *Stressors* umbrella category was *Lapses in Control of the Class*. This theme reports how stress increased when the participant perceived he was losing or being challenged for control. The two subthemes within the higher-order theme were *Managing Behaviour* and *Confrontations with Pupils*. The participant spoke of first meeting his classes:

“It's the initial power struggle where the kids test your boundaries, and it leads to confrontations you never thought would happen. They'll push you to work out where the limits are but at the same time you're pushing back because you want to be seen as the authority figure.”

The third higher order theme under the *Stressors* umbrella category, *What Others Think*, reflects feelings of stress and concern portrayed by the participant in the raw data regarding other's, including staff, students and teachers, perceptions of the participant's abilities as a teacher. This theme was made up of three further subthemes. The first was *others perceptions of teaching ability*, and the participant spoke of how this adds stress to already stressful situations.

“There's always the added thought of ‘what if the head teacher, or what if someone else, walks in right now and I'm responsible for this call and there's a fight going on... and you don't want anyone to think you're bad at your job really.”

The second subtheme, *certificated classes*, reflected perceptions of stress which evolve from teaching classes which are assessed through pupils' grades:

“There’s kind of pride in your job and you want the results to be a good reflection of how you perform and how you teach, and at the end of every exam year, your results are there, and the overall departments results, for everyone to see.”

The third sub-theme, *parental complaints*, reflected the participant’s tension regarding the possibility of parental complaints.

*Coping*. The fifth umbrella category combines the different ways of coping with stressful situations which emerged from the raw data and contained two higher-order themes. The first higher-order theme, *dealing with stressful situations*, was compromised from two subthemes relating to the use of *humour* and *seeking external validation*, to deal with stressful events. The participant spoke of his response to negative situations in his classes:

“And you maybe tell people to make sure that you weren’t the one in the wrong, not a matter of shifting blame, but you just needed to seek reassurance, especially as a young professional, you want someone to say ‘oh I would’ve done the same as you’ or ‘there nothing else you could’ve done’.”

The second higher-order theme to emerge from the raw data was that *people put pressure on themselves*, and reflected the participant’s views that ultimately you choose how much pressure you put on yourself, or how stressful you make situations for yourself:

“Well I think that there are people who take themselves far too seriously here, and they’re probably the ones who create these stressful situations by themselves by constantly picking fights over the little battles.”

*Planning for Negative Outcomes* was the sixth and final umbrella category to emerge from the raw data. The participant spoke several times in a way that was preparing for a negative eventualities. Some of these raw data responses were grouped together to form the sub-theme and correspondingly named high-order theme, *protecting your professional self*. This theme refers to the lengths he perceived teachers go to in order to “cover your own backs”. The second higher-order theme contained within this category was *preparing excuses for failure*:

“There’s always that sort of looking over your shoulder making sure you’ve got everything and it’s almost like, some people view it as backing yourself up so if someone does fail you can say ‘well it’s not my fault’.”

#### **7.4. Discussion**

The primary aim of the current study was to investigate the effects of a CBT-based optimism training programme on explanatory style and stress, 12-months following completion of the training. The qualitative results suggest that individuals who received the prolonged CBT-based optimism training programme portrayed higher levels of optimistic explanatory style in the way they routinely explained good and bad events within their daily work lives. The secondary aim was to provide an insight into the perceived effectiveness and applicability of the optimism skills within a full-time teaching vocation. Results highlight that the individuals who received the prolonged CBT-based optimism training applied the skills on a more regular basis, and reported higher levels of



perceived effectiveness of the skills in combating stress, than the individual who received only the initial CBT-based optimism training workshops. The data portrayed throughout the results section is discussed in relation to each of the study aims below.

#### *7.4.1. The Longitudinal Effects of CBT-Based Optimism Training on Explanatory Style and Stress*

The CBT+ group demonstrated a higher level of optimistic explanatory style than either the individual who participated from the CBT group or the individual who volunteered from the control group. The CBT+ group consistently displayed evidence of attributing positive events to internal, stable and global causes whilst attributing negative events to external, unstable and specific causes. In doing so they met all the criteria of possessing an optimistic explanatory style, as identified by Seligman (2006). This supports the previous findings of Seligman et al. (2007) who found that CBT-based optimism training had a longitudinal effect on maintaining high optimistic explanatory styles in 240 college students. Whilst displaying higher levels of optimistic explanatory style, the CBT+ group also reported fewer stressors within their current work environment than either the CBT or control individuals. This provides support for the work of Gardner et al. (2005) which highlighted that CBT-based training had a longitudinal effect on reducing stress in National Health Service (NHS) employees. Gardner et al. concluded that this was because individuals who had received CBT-based training had continued to implement the thought-adapting skills over the post-training period. This conclusion is supported by the current findings as the CBT+ group displayed regular use of the CBT-based optimism skills within their

work and personal life. Furthermore, participants within the CBT+ group showed an awareness of applying the skills successfully in stressful situations, such as dealing with bad behaviour and conflict within the teaching staff, increasing current empirical-based evidence suggesting that optimistic explanatory style acts as a buffer against stress. Additionally, participants within the CBT+ group displayed knowledge of how the skills had developed and become more effective over time and with practice. This not only supports the theory of cognitive-behavioural training practice, which stipulates skills must be practised to be effective (Neenan & Dryden, 2005), but also the very notion that an individual's optimistic explanatory style can be altered through manipulation (Burns & Seligman, 1989; Buchanan et al., 1999; Seligman, 2006; Seligman et al., 2007).

The quantitative assessment of explanatory style (as measured by the Attributional Style Questionnaire, ASQ: Peterson et al., 1982) does not support the themes which arose within the qualitative data. The minimal samples sizes render the quantitative analysis extremely precarious and, as such, they are not discussed in detail within the current section. However, Figure 7.1 does provide a general overview of how the levels of optimistic explanatory style changed over the entire PGDE and at the follow-up point. As can be seen, according to self-report measures, explanatory style dropped for all participants between the final practicum segment of the PGDE and the follow-up.

Further support for the concept that CBT-based optimism skills had a longitudinal effect on reducing stress comes from comparing the higher-order themes grouped within the stress reducing factors and stressors umbrella categories for the CBT+ group, the individual from the CBT group and the

individual from the Control group. Not only did the CBT and control individuals identify more stressors, but some of the stressors highlighted by the control individual, such as independence and responsibility, were identified as stress reducing factors by the CBT+ group. This finding demonstrates that the participants were subjected to similar situations within their full-time teaching environment but perceived them in different ways. Subsequently, this data provides evidence to support the discussion points made in Chapter 5, which proposed that optimism affects perceived stress levels through impacting on an individual's appraisal process.

Lazarus & Folkman's (1984) transactional model of stress stipulates that it is not the event that occurs but, rather, the individual's appraisal of it which is important. If an individual perceives that the situation outweighs their coping resources and poses potential harm, threat or loss, they will experience stress (Lazarus & Folkman, 1984). The fact that several situations identified by participants across all three groups were the same, yet some identified them as stressors and others as stress reducing factors would imply that it was actually the appraisal of the events that differed. Furthermore, the finding that it was the individuals who consistently demonstrated an optimistic explanatory style who perceived the universal situations as stress reducing aspects of the job corresponds with previous studies which have identified that optimism impacts on stress via the appraisal process (David et al., 2006; Chang, 1998).

Whilst discussing the impact of the CBT-based optimism training on stress, the umbrella category 'stress reducing factors' which emerged from the interviews is worthy of note. This category refers to situational factors that the participants

perceive have changed from the PGDE to their probationary year which have somewhat reduced perceived stress. This category emerged from the raw data provided by the CBT+ group, the CBT individual and the Control individual, and identifies some of the environmental factors which may account for any reduction in stress. Most notably the ability to build relationship with pupils, the ability to be flexible in adapting their teaching style and experience were common across all interviews. These themes are interesting because they identify that all the participants have undergone similar processes, been subjected to similar broader experiences and value the same factors. The themes may also provide some evidence that reduction in stress may be partly due to factors such as the environment and experience. For example, experience is likely to impact upon an individual's secondary appraisal process because if they have successfully dealt with an adverse situation before, they know they have the necessary coping resources required and will not experience stress. However, it is argued that despite these similar perceptions by the participants, the participants in the CBT+ group still reported fewer stressors and identified the optimism skills as being an important factor as to whether they find situations stressful or not. As such, it is suggested that the prolonged CBT-based optimism training was effective in reducing stress over a 12-month period of time which marked a transition, from student to neophyte teachers.

The current findings also indicate that the CBT-based optimism training had a positive longitudinal effect by reducing the amount of negative affectivity experienced during the student to neophyte teacher transition. The CBT+ group displayed a higher incidence of positive emotions than either the CBT individual or the control group individual. Moreover, the CBT+ group reported that

negative emotions dissipated quickly following negative events, whilst the CBT and control group individuals both reported experiencing negative emotions for the remainder of the day following a negative event. These differences in emotions displayed by the CBT+ group and the individuals from the CBT and control groups shadow the findings discussed above in relation to stress perception, with the CBT and control group individuals, experiencing more stress and negative emotions than the CBT+ group. This data supports Lazarus' (1999) statement that the fields of stress and emotion are interdependent. Their link is explained by Lazarus (1999) who proposed that the outcome of the appraisal process would instantaneously generate a corresponding emotion. Hence, individual's who perceive a situation as posing harm, threat or loss will experience stress and negative emotions. Whereas, if a situation is appraised as posing challenge but can be effectively dealt with, the individual will not experience stress and may experience no, or even positive, emotions regarding that event. As discussed above, the current findings support previous studies suggesting that optimism impacts on stress via Lazarus & Folkman's (1984) appraisal process. They also provide evidence in support of the speculations discussed in the Chapter 5, section 5.4.2. Therefore, it could also be concluded that the positive interaction of optimism and the appraisal process would result in lower levels of reported negative affectivity.

Furthermore, the CBT+ group, who received the prolonged CBT-based optimism training, reported that negative emotions dissipated quickly. Opposed to the other individual's who were affected by such negative emotions for a substantial period of time afterwards. A suggested explanation for this is that the CBT+ group actively employ the CBT-skills following negative events and, through

changing their thoughts and explanations surrounding the event, they evoke alternate, more helpful emotions (Neenan & Dryden, 2005). Consequently, a prolonged CBT-based optimism training programme appears to have had a positive longitudinal effect on the affectivity experienced by individuals during the transition from student to neophyte teachers.

These results also provide further support for the existence of a cause-effect relationship (as discussed in Chapter 6) between optimistic explanatory style and stress. The McMaster Group (Walsh, 1994) and Hill (1965) highlight a dose-response effect as one of the key criteria for assuming an element of causality within a relationship. The CBT+ group, who received the prolonged optimism training, demonstrated higher levels of optimistic explanatory style and lower levels of stress than the CBT individual, who received only the group-delivered optimism training, thus demonstrating a dose-response effect.

#### *7.4.2. Perceived Effectiveness and Applicability of the CBT-Based Optimism Skills*

Results suggest that participants who received the prolonged CBT-based optimism training found it applicable and effective in dealing with everyday stressors which emerged from the teaching environment. The participant who received only the initial workshop delivered CBT-based optimism training reported no conscious use of the skills in his everyday teaching and subsequently could not comment on their effectiveness. This may mean that the longer the training is received, the longer the effect it has, adding to the evidence regarding the dose-response effect discussed above. However, this comparison is not an

entirely true reflection as there was only one participant from the CBT group who volunteered to take part in an interview. Therefore it is not possible to determine whether that was simply his personal approach to the training or whether the lack of current skill use is common among everyone in that group.

What can be determined from the results is how effective and applicable the CBT+ group found the CBT-based optimism skills to be. Raw data responses pertaining to the effectiveness of the optimism skills in reducing stress were present across the transcripts for all three participants from the CBT+ group. This supports the concept that CBT-based optimism training may reduce the amount of stress experienced by neophyte teachers. Furthermore, all participants in the CBT+ group showed evidence of using the skills regularly within their work-environment, suggesting they are not only applicable during a training course but, following on from that, in full time occupation as well. This adds to existing positive psychology literature because it shows that simply enhancing positive attributes, such as optimism, can have a beneficial impact for the broader population. In 2000, Seligman & Csikzentmihalyi published an article highlighting how the psychological society had focused purely on ‘healing’ for half a century. They called for an increase in research studying the enhancement of positive emotions, positive character traits and enabling institutions. To date, however, the majority of this research has occurred within population samples that were suffering from, or pre-disposed to suffer from, depression (Buchanan et al., 1999; Seligman et al., 2007) and, as such, continued to focus on the remedial impact of psychology. In response to this the current thesis aimed to explore whether enhancing optimism would positively benefit individuals who were not suffering a mental illness. The current results, combined with those from Chapter

5, suggest such psychological training can be successfully used to benefit a broader population than previously thought.

An interesting theme which emerged from the data of the CBT+ group was that of 'Buy In'. All the participants in this group made reference to the fact that the skills had been introduced to them at a time in their course when they were particularly stressed. As such, it may be that the reason the skills were so effective for them was because they were motivated to learn and develop the skills in order to help them deal with their then-current situation. This finding supports CBT literature which dictates that CBT-based skills develop over time and practice (Neenan & Dryden, 2005). However, this finding is interesting because it may also imply that individuals who are already stressed benefit more from the skills than individual's who are not stressed. In this sense these results may help explain why previous optimism training has been so effective with pessimistic individuals (Buchanan et al., 1999; Seligman et al., 2007). A possible explanation for this is motivation. If individuals are motivated to learn the skills in order to become more optimistic or less stressed, they appear to apply more effort during the training and following on from that.

#### *7.4.3. Explanatory Style and Dispositional Optimism*

The third aim of the current study was to continue exploring the potential relationship between the two optimism constructs, optimistic explanatory style (Ambramson et al., 1978; Seligman, 2006) and dispositional optimism (Scheier & Carver, 1985). Results suggest that the CBT+ group, who exhibited high levels of optimistic explanatory style during their interviews, also demonstrated a



generally positive outlook about future events. Numerous times throughout the interview they referred to maintaining positive expectations about how future events would go, and just a general expectation that things would go well. This corresponds with Scheier & Carver's (1985) definition of dispositional optimism as referring to people's general expectancies about the future. These findings were supported by the quantitative data analysis conducted on the CBT+ group's self-report data. Results showed a significant positive correlation was present, providing support for the hypothesis that there is a link between explanatory style and dispositional optimism. Whilst both the qualitative and quantitative findings of the current study are in agreement with Abramson et al. (1978) who proposed that the way in which an individual routinely explains events in their lives will have a subsequent effect on their future expectations, the current quantitative findings are somewhat limited due to the small size of the sample.

The depth of the qualitative data however, would appear to support the hypothesis in Chapter 2 (page 25) that as a result of ongoing life experiences the temporal process of positive expectations and explanations becomes 'cyclical'. In such that a habitual pattern of thought, such as explanatory style, is likely to crystallise and become more akin to a disposition, and an individual's dispositional outlook on life is likely to influence the way in which they routinely attribute cause within their life. The current findings support previous research indicating a cyclic relationship exists between the two constructs. Busseri et al. (2009) reported that, in addition to anticipating more satisfying outcomes, dispositional optimists were more likely to have rosier evaluations of past and present life events and outcomes. However, the current findings also conflict with those of Tomakowsky et al. (2001), who concluded that whilst both

explanatory style and dispositional optimism were significantly positively correlated with positive health and each other, the two models tap into different aspects of a global optimism construct. Consequently, whilst the current study provides support for the potential ‘cyclic’ relationship between the two optimism constructs, further research is required in order to foster a fuller understanding of the processes involved.

#### *7.4.4. Limitations*

Any conclusions which are drawn from the current study regarding comparisons between the CBT+ group, the CBT individual and the control individual are somewhat limited by the small, and unequal, sample sizes within the current study. It is suggested that the qualitative data collected from the three CBT+ group participants is sufficient, due to its depth, to be able to draw conclusions from. However, whilst the data from the CBT individual and control group individual provides a comparison for the CBT+ group data, due to the fact that the data came from only one person any conclusions are speculation and would require further research in order to be further established or understood. Another potential limitation in the current study is that the primary researcher was immersed within the overall study and as such, may have brought biases to the data analysis. An attempt to counteract this was made by bringing in a secondary researcher who had not been involved with the prior studies, or preparation for the current study, in order to provide a level of triangulation to the analysis. Furthermore, the second researcher brought a different background, and therefore a different viewpoint to the analysis, which is highlighted by Banister et al. (1994) as being an integral part of triangulation in qualitative research. The

primary researcher delivered the optimism training and conducted the interviews. In doing so, this may have fostered an element of expectancy bias in the participants who had spent a long time with the researcher (primarily those who had received the prolonged training) and prompted them to make comments they believed the researcher wanted to hear. This was partially planned for in designing the interview by developing prompts and probes for responses which provoked the participant to provide detailed information about the event. As such, this depth of enquiry may have made it harder for participants to fabricate responses.

#### *7.4.5. Implications*

The current findings have both theoretical and practical implications for the fields of optimism, stress management and initial teacher education. The results lend support to previous literature which suggests that CBT-based optimism training has a longitudinal positive effect on optimistic explanatory style (Seligman et al., 2007) and also on work-related stress (Gardner et al. 2005). Moreover, the current results add to this existing literature, and positive psychology, by demonstrating that the positive, longitudinal effects of CBT-based optimism training is applicable to all individuals, opposed to only those who are pre-disposed to suffer from depression (Buchanan et al., 1999; Seligman et al., 2007). Consequently, the current results imply that the use of positive psychology interventions can be successfully used to benefit a broader population.

Furthermore, the current findings add to existing literature by highlighting the presence of a dose response associated with CBT training to enhance optimism. This not only provides information supporting a causal relationship between optimism and stress, but it also begins to answer the question of how much training is required (Hansen et al., 2002). Results suggest that, for longitudinal effects, any future implementation of CBT-based optimism interventions on PGDE PE programmes would benefit from being eight-weeks long, opposed to four-weeks.

One of the rationales driving this thesis was the deficit of research focusing on the design and effectiveness of interventions aimed at combating teacher stress as identified independently by Jarvis (2002) and Kyriacou (2001) (see Chapter 1, section 1.5). The current study demonstrates that a CBT-based optimism intervention can successfully reduce teacher stress and, therefore, contributes valuable knowledge to the field of teacher stress by directly addressing this deficit. These results also have further practical implications regarding the implementation of such CBT-based optimism training programmes on future PGDE courses. They highlight that the skills are not only beneficial in reducing stress during the practicum elements of initial teacher education (see Chapter 5), but that they were also beneficial in reducing stress during the transition from a student to neophyte teacher. Subsequently, the inclusion of such training as part of a professional skills module on a PGDE may help to combat the number of neophyte teachers who leave the profession within their first year as a result of stress (Chambers & Roper, 2000).

#### *7.4.6. Conclusion*

In conclusion, the current study indicates that a prolonged period of CBT-based optimism training during a teacher-educator course enhances explanatory style and reduces perceived stress in neophyte teachers, up to 12 months following the training. It is suggested that further research studies would be beneficial to explore how long the effects are present and whether they have a subsequent impact on the withdrawal of teachers from the profession. The current study also suggests that a prolonged period of training is more beneficial than only the four-week, group delivered training programme. These findings also provide support for the concept that how an individual explains events in their lives will impact on the expectations regarding future events. Further research is required, with the appropriate sample size, in order to explore the potential relationship between explanatory style and dispositional optimism.

## **Chapter 8**

### **General Discussion and Conclusions**

The present thesis set out to explore the relationships between optimistic explanatory style and stress, and optimistic explanatory style and dispositional optimism and, as such, had two main aims. The primary aim was to assess the effects of a cognitive behavioural therapy (CBT) based optimism training programme on perceived stress in student teachers undertaking a one year, subject-specific postgraduate diploma of education (PGDE) course. Results suggest that such an intervention was effective in reducing cognitive stress and negative affectivity in student teachers whilst on in-school placements, and during the transition into full-time teaching. The second aim of the current thesis was to explore the potential relationship between the two prominent optimism constructs: explanatory style (Ambramson et al., 1978; Seligman, 2006) and dispositional optimism (Scheier & Carver, 1985). Results suggest that a CBT-based optimistic explanatory style intervention had a longitudinal impact on dispositional optimism. Each of the individual research studies, and their results, combined within the current thesis are discussed below in relation to the overarching thesis aims, existing literature and their contribution to psychological and Initial Teacher Education (ITE) knowledge.

#### **8.1. CBT-Based Optimism Training, Explanatory Style and Stress**

A longitudinal research project was designed and executed in three stages (see Chapters 5, 6, and 7) in order to fully explore the effects of a CBT-based optimism intervention of student-teacher stress. Primarily, a pre-test,

intervention, post-test design, employing both with-in and between-group measures, was used to explore the impact of a four-week CBT-based optimism intervention on the amount of cognitive stress, affectivity and physical stress perceived by student-teachers whilst undertaking the practicum element of their PGDE course. Results suggested that the optimism training programme successfully enhanced optimistic explanatory style and reduced perceived cognitive stress (as measured by the PSS, Cohen et al., 1983) and negative affectivity (as measured by the PANAS, Watson et al., 1988) in student teachers on teaching placement (see Chapter 5).

In order to explore these effects further, a subsequent study (see Chapter 6) was conducted in order to explore the presence of a causal element in the relationship in the optimism-stress relationship. This was done by employing a dose-response design (Walsh, 1994; Hill, 1965). In order to achieve this, the experimental group from the primary study (Chapter 5) were split into two sub-groups. One group continued to receive the CBT-based optimism training and the other group ceased to receive any intervention and continued with the PGDE course as normal. The same pre-test, intervention, post-test design was employed. Results from the study however, were mixed. The prolonged CBT-based optimism training did not further enhance optimistic explanatory style as hypothesised. In contrast to this, all groups displayed a drop in explanatory style from the practical placement two (baseline for the current study) to placement three (following the prolonged intervention). Individuals who received the prolonged optimism training did portray the smallest drop in explanatory style, and still demonstrated significantly higher levels of optimistic explanatory style than the control group. It is suggested that the drop in explanatory style portrayed

by all three groups may have been a result of the intense period of professional training they were going through. One explanation for the results may be that the prolonged training had a buffering effect and prevented the CBT+ groups' explanatory style from dropping further. The prolonged CBT-based optimism training was, however, associated with lower levels of reported cognitive stress and negative affectivity than the CBT group during placement three (see Chapter 6).

Finally, a mixed-methods study employing both quantitative based self-report measures and qualitative based interviews, in tandem, was conducted in order to gain more insight into perceived applicability and effectiveness of the skills within a full-time vocational environment, and also to follow-up on the skills 12 months later (see Chapter 7). Results indicated that participants who had received the prolonged CBT-based optimism training demonstrated higher levels of optimistic explanatory style in their interviews, reported fewer stressors and less negative affectivity than individuals who had received either the initial optimism training or no optimism training. Furthermore, individuals who had received the prolonged intervention were still actively applying the skills to everyday situations and could demonstrate how their use of the skills had developed, and in cases become more automatic and subconscious. These individuals also reported a conscious awareness that they felt the optimism skills they had learnt helped them to deal with stressful situations that arose.



### *8.1.1. CBT-Based Optimism Training and Explanatory Style*

Overall, the results from these three studies (outlined in Chapters 5, 6, and 7) suggest that the CBT-based optimism training was beneficial for the student-teachers, not only during the professional training, but subsequently in full-time occupation as well (see Chapter 7). The data suggesting that CBT-based training enhanced optimistic explanatory style supports Seligman (2006) and Schulman (1999) who suggest that because explanatory style is a cognitive style, it can be altered. Furthermore, the results are consistent with previous intervention-based research studies, such as Seligman (2007) and Buchanan et al. (1999), who have demonstrated that CBT-based training could be used to enhance optimistic explanatory style.

As well as supporting previous research, the current thesis contributes new knowledge to existing Positive Psychology theory and practice by identifying that CBT-based optimism interventions are effective in populations who are not at risk of developing depression. Previous research in enhancing optimistic explanatory style has focused on helping individual's who demonstrate a high pessimistic explanatory style; Buchanan et al. (1999) and Seligman et al. (2007) both employed a CBT-based optimism intervention as a means of prevention. They identified individuals who were at risk of developing depression due to their pessimistic explanatory style and intervened in order to prevent the onset of depression and minimise subsequent health problems.

In 2001, Seligman & Csikzentmilhalyi called for psychological research to stop focusing on fixing what is broken, and start focusing on the impact on simply

enhancing peoples' strengths and positive characteristics. This movement became known as Positive Psychology. Whilst working within the Positive Psychology paradigm, research studies such as Buchanan et al. (1999) and Seligman et al. (2007) somewhat contradict the fundamental aim of the Positive Psychology movement in that they continued to focus on fixing what is broken or deficient (see Chapter One) by utilising a specific sub-population of depressive individuals. The current thesis responds to Seligman & Csikszentmihalyi's (2001) paper by examining the benefits of simply enhancing optimistic explanatory style.

The research presented within this thesis suggests that individuals do not necessarily have to be pessimistic in order to become more optimistic, and that any individual can employ these skills in order to explain events in a more beneficial, positive way. This, finding supports Schulman (1988) who stated that "even the diehard optimist will occasionally have pessimistic beliefs when exposed to extreme or prolonged stress and can benefit from the use of these proven techniques" (p4). The current research also supports the rationale behind the emergence of Positive Psychology, that psychological research and practice should focus on enhancing the good as opposed to only minimising the bad. Furthermore, it has implications for the practical application of psychology to the broader population.

The positive impact the CBT training had on explanatory style (see Chapter 5 and 7) can be explained by exploring the nature of cognitive-behavioural based training. Explanatory style is defined as the routine way in which individuals attribute causes to the events in their lives (Abramson et al., 1978). CBT

involves teaching individuals to be aware of their thoughts and the impact they have, and to consciously alter one's thought process (Neenan & Dryden, 2004) regarding situations in their lives. As such, CBT-based training can be used to teach individuals to overcome self-defeating beliefs such as pessimism (Schulman, 1999). Once individuals are aware of their thoughts, and what constitutes optimistic and pessimistic thinking (Seligman, 2006), they can choose to embrace the more optimistic explanation for an event. In this way by implementing the CBT skills, they should display an increased optimistic explanatory style.

An interesting point which arose from the three studies, which was unexpected, was that the control group, who received no optimism training portrayed changes in explanatory style at each placement (see Chapters 5, 6 and 7). These results contradict those of Burns & Seligman (1989) who proposed that, without intervention, explanatory style was a stable personality characteristic. One possible explanation is that the highly intense period of professional training, which is required to successfully complete a PGDE, acted as an intervention and impacted upon individuals' explanatory styles. Subsequently it is suggested that further research is required in order to determine whether explanatory style is indeed a stable characteristic, or whether it fluctuates throughout life in response to meaningful external stimuli. As in the current thesis, to be valid, such research should be naturalistic and relevant to the participants in order to monitor and non-manipulated changes in explanatory style.

### *8.1.2. CBT-Based Optimism Training and Stress*

The results from all three studies contained within the present thesis suggest that the CBT-based optimism intervention was successful in reducing cognitive stress and subsequently, negative affectivity in student, and neophyte, teachers (see Chapter 5, 6 and 7). Student teachers who received the intervention as part of the taught element of their PGDE displayed lower levels of cognitive stress and negative affectivity whilst undertaking the practical element of their PGDE course (Chapter 5). Stress levels were assessed during teaching placements because they have been identified by Chambers & Roper (2000) as one of the most stressful parts of a one-year teacher education programme for prospective teachers. Furthermore, they provided an optimal opportunity to assess the effectiveness of the skills in an ecologically valid environment (Chapter 4).

The content of the current thesis directly responds to calls from Kyriacou (2000) and Jarvis (2002) who both conducted independent reviews of teacher stress literature and concluded that further research into effective teacher-stress interventions was required. Furthermore, the current study responded directly to Jarvis's (2002) statement that CBT-based interventions required research, of a longitudinal nature, within the teaching domain. The findings suggest that CBT-based interventions are effective at reducing perceived stress within the teaching occupation. Such a finding not only adds to current theory surrounding stress-management interventions within the teaching vocation, but also has practical implications for the inclusion of CBT-based optimism training as part of a professional skills module on future PGDE courses. Results suggest that if such

skills could be taught to student teachers as part of their professional training, it may buffer them against occupational stress involved in teaching. This in turn may positively impact upon the number of individuals who drop out of PGDE courses (as highlighted by Chambers (2002) and also full-time teaching (Montgomeray & Rupp, 2005). This would mean there are more teachers remaining in the profession and gaining experience.

Previous research has identified that CBT-based interventions successfully reduced stress in NHS employees (Gardner et al., 2005). Gardner et al. (2005) suggested that the CBT skills had a positive longitudinal effect following were effective at reducing stress in NHS employees through continual use. The current thesis provides support for this conclusion. Through the use of interviews the final study (Chapter 7) highlighted that individual's who had received prolonged training, not only reported fewer stressors than their counterparts, but also demonstrated regular and developed application of the skills.

The success of the CBT-based optimism intervention at reducing cognitive stress is not surprising considering that the training involves identifying and adapting negative cognitions. By making student teachers thought processes more optimistic it is reasonable that this would have impacted upon their cognitive appraisal of potentially stressful situations. As discussed in Chapter Two, this cyclic process at the heart of Cognitive Therapy (Beck, 1995) can be mapped directly onto Lazarus and Folkman's (1984) transactional model of stress which stipulates that it is not the situation which causes stress but rather the individual's cognitive appraisal of the situation. This explains why individuals experience

varying levels of stress from the same situation. The current results imply that the CBT-based optimism skills reduced perceived stress by impacting upon an individual's appraisal process. Previous research has indicated that optimism interacts with the primary appraisal process to reduce perceived stress (David et al., 2006) and the secondary appraisal process when choosing coping strategies (Chang, 1998). However, the current methodology did not allow a conclusion to be drawn about where in the appraisal process optimism has its affect. In 1998, Chang created a six-item measure of appraisals. It is suggested that a tool like this, or one of the other appraisal measures, could have been used to enhance the conclusions being drawn from the current thesis. Future research studies on stress should not only focus on if there is a relationship, but also explore where that relationship lies.

In addition to the drop in cognitive stress, individual's who received the initial and prolonged CBT-based training also reported lower levels of negative affectivity (Chapters 5, 6 and 7). These results support the premise of Cognitive Therapy model (Beck, 1995) which proposes that an individual's cognitive processes will have a direct impact on their emotions, and Lazarus (1999) who suggests that the stress-appraisal process will generate an emotion within the individual, which occurs relatively instantaneously. Furthermore, these results support the above suggestion that optimism skills help reduce stress by mediating an individual's appraisal process. If the individual is consciously embracing more optimistic thoughts and explanations, and subsequently perceives less stress, it is also reasonable that they would experience fewer negative emotions. Lazarus (1999) stipulated that where there is stress, there will be emotions. If an individual's appraisal process is moderated, meaning they view fewer situations

as stressful, the negative emotions will not occur. Subsequently, the drop in negative affectivity displayed by the experimental groups (Chapters 5, 6 and 7) implies that the CBT-based optimism intervention was successful in enabling participants to identify negative thoughts and replace them with optimistic ones in order to reduce stress.

The drop in cognitive stress and negative affectivity following the intervention can be explained by examining the thought changing skills employed within cognitive-behavioural training. The first part of the CBT training intervention involved teaching participants to identify negative thoughts and stop them. The second part, however, entailed developing participants' ability to generate more optimistic explanations for the event. According to the Cognitive Therapy model (Beck, 1995), this process should lead to enhanced positive emotions. The current results however, display no increase in positive affectivity (see Chapters 5, 6 and 7). This may reflect the concept that automatic thoughts regarding events stem from an individual's explanatory style which is considered to be somewhat stable (Burns & Seligman, 1989) and engrained. In this sense it may reflect the individual's core beliefs. Consequently, while an individual may be able to stop and change negative thoughts at the time, embracing and fully believing a new optimistic belief may take more time. It is common within CBT practice for participants to be reluctant to immediately commit to their new thoughts due to the new thoughts conflicting with their core belief. Subsequently, although individuals are actively employing their new thought process, it may not be accompanied by a strong positive emotion until a new or altered core belief has been accepted.

### *8.1.3. Explanatory Style and Stress: A Causal Relationship?*

The current thesis explored the element of causality in the optimism and stress relationship (see Chapter 6). Initial results were conflicting because the prolonged CBT-based optimism training was not associated with an increase in explanatory style, although it may have prevented a potentially larger drop in explanatory style (as demonstrated by the control group at this point). Similarly, both the CBT+ and CBT group displayed an increase in cognitive stress from placement two to three. However, the prolonged intervention was associated with lower levels of cognitive stress and negative affectivity when compared to the CBT Group at placement three. This suggests that the prolonged training may have had a preventative effect on optimism and stress, opposed to an enhancing effect. It is suggested that potentially the training may have reduced the negative impact of a highly stressful environment.

Further conflicting results emerged from the qualitative data (see Chapter 7) which suggested that individuals who had received the prolonged CBT-training demonstrated higher levels of optimistic explanatory style and lower levels of stress in their first year of full-time teaching than individuals who had received only the initial, or no, training. A possible explanation for the trends in the data reported in Chapters Five, Six and Seven is that because the skills take time and practice to develop. Due to the difficulty of changing core beliefs (Neenan & Dryden, 2004), the dose-response effect of optimism and stress (Chapter 6) wasn't apparent until the follow-up point (Chapter 7) when due time had elapsed for individual's to develop their use of the skills. This explanation is supported by qualitative data pertaining to how individuals felt the skills became more



effective with time and practice (see Chapter 7). Due to the conflicting nature of the current results, it is suggested that further research is required in order to fully explore whether there is a dose-response effect associated with CBT-based optimism training.

## **8.2. Explanatory Style and Dispositional Optimism**

The secondary aim of the current thesis was to explore the potential relationship between the two optimism constructs: explanatory style (Amramson et al., 1978; and Seligman, 2006); and dispositional optimism (Scheier & Carver, 1985). Explanatory style refers to the way in which individual's routinely explain the causes of events in their lives (Amramson et al., (1978; Seligman, 2006). If an individual has an optimistic explanatory style they will attribute the causes of good events to internal, stable, and global factors and attribute the causes of bad events to external, unstable and specific factors. Dispositional optimism, on the other hand, refers to an individual's expectations about what will happen in the future. Scheier & Carver (1985) stipulate that individuals with an optimistic disposition will tend to have a favourable outlook, expect things to go their way and generally believe that good things will happen to them. The results of the current thesis were mixed. Chapters Five and Six highlighted no significant relationship between optimistic explanatory style and dispositional optimism, and no change in dispositional optimism following either of the CBT-based optimism interventions. However, in contrast to these, results from Chapter Three (the pilot study) and Chapter Seven identify there was a significant positive relationship present between the two constructs.

The results reported in Chapters Five and Six are consistent with previous research which has compared the two constructs. These few research studies have suggested that although they are both related to better health and general well-being, they are minimally related to each other (Tomakowsky et al., 2001), and whilst they both lead to destructive school behaviour, they do so through different mechanisms (Bowman et al., 2003), suggesting there is little relationship between the two. Hirsch et al. (2006) also reported conflicting results and suggested that, whilst they may have reflected the different etiologies of the two constructs, they may also have been the result of a lack of statistical power. It is suggested that the research presented in Chapter Three had more statistical power, by employing a larger sample size, and subsequently was able to identify the relationship between the two. Furthermore, the previous research studies measured the constructs only once, and did not employ an interventional element. As such, the current study provides some new information on the longitudinal relationship between explanatory style and dispositional optimism.

Following the results presented in Chapter Five it was suggested that if an individual was successfully altering their thought processes in order to enhance their optimistic explanatory style, and were consciously employing new, more optimistic thoughts about events that happened to them, eventually they would create new core beliefs and schemas. In turn, these core beliefs would likely influence an individual's expectations about events in their future. However, literature on the practice of CBT refers to the fact that changing a core process can be a lengthy process because they are so engrained within the individual (Neenan & Dryden, 2004). New thought processes, developed during CBT-based training, must be practiced regularly and developed over time to be fully

accepted by the individual at a sub-conscious level. This hypothesis is supported by the results presented in Chapter Seven, the follow-up study.

The findings presented in Chapter Seven indicate that individuals who received the prolonged CBT-based optimism training demonstrated higher levels of both explanatory style and dispositional optimism compared to those from either the CBT or control groups. Results also portrayed a significant correlation between the CBT+ groups' explanatory style and dispositional optimism. The above hypothesis would also explain why immediately following the CBT-based optimism interventions reported in the current thesis (Chapters 5 and 6), there was no change in dispositional optimism, or correlation between explanatory style and dispositional optimism. In Chapter Seven, participants in the CBT+ group demonstrated regular use and development of the skills, and also described how the skills were 'more subconscious now'. These results support the concept that core beliefs take time and effort to change. Furthermore, the participants demonstrated an expectation that things would go well in the future, supporting the notion that the optimistic explanatory style intervention had a positive impact on dispositional optimism in the long run.

### **8.3. Limitations**

The field-based nature of the research reported within the current thesis meant that the effects of the CBT-based optimism intervention could be assessed on individuals undergoing an intense period of professional training in a naturalistic occupational environment that contained genuine and personally relevant stressors. In this way, the naturalistic approach enhanced the ecological validity

of the data (see Chapter 4). However, conducting research on real-life populations meant that the original sample size was limited by course admissions. Furthermore, the geographical dispersion of participants during the practicum element of their PGDE course, and the longitudinal nature and intensity of data collection required led to a large drop out rate during the initial study (Chapter 5). Subsequently, due to the longitudinal nature of the work conducted within the current thesis, this initial drop out rate had repercussions on the following researching studies presented in Chapters Six and Seven, in that it automatically reduced their maximum potential sample size. Consequently, small samples sizes were a recurring limitation throughout the overall thesis (Chapters 5, 6 and 7).

The potential withdrawal of participants was identified prior to the study and preventative measures were taken by ensuring the researcher maintained regular contact with the participants whilst they were on placement in order to remind and encourage them to complete the data collection procedures each week. The majority of the drop out in the primary study occurred in the control group. This may be due to a lack of perceived personal relevance by the control group. It is suggested that more face-time and interaction with the researcher may have reduced the scale of the drop out. It is also suggested that the longitudinal nature of the data collection, conducted over a period of time which was potentially stressful for the participants, was a problematic factor for retention. This especially became evident during the final, qualitative based study. As reported in Chapter Seven, only five participants were willing to be interviewed and provide self-report data eight months after the completion of their PGDE. Participants were informed about the interview-based study at the end of their

PGDE in an attempt to prepare them for participation. However, it is possible that the sample that volunteered may have been larger if the researcher had maintained regular contact with participants in the intervening period. Another potential explanation of this is that the individuals were too busy, in their full-time occupational roles, to contribute to the study.

A major strength of the current thesis is that it employed consistently explored the effects of a controlled intervention within a naturalistic environment. In doing so, it highlighted the link between optimism and stress. Throughout the study it is suggested that due to the cognitive approach used in training, the intervention impacted on stress via the appraisal process (Lazarus & Folkman, 1984). What the present findings do not tell us, however, is how this relationship works. One way to extend this study would be to investigate which area of the appraisal process optimism impacts upon in order to better tailor future interventions.

#### **8.4. Implications**

Findings from the current thesis have important theoretical implications for four main areas: positive psychology research; explanatory style and stress; managing student-teacher and teacher stress; and the relationship between explanatory style and dispositional optimism. Furthermore, due to the field-based nature of the research, the current findings have practical implications regarding the implementation of student-teacher, and teacher, stress reduction techniques. Firstly, the current findings highlight that CBT-based optimistic explanatory style techniques have a positive impact on individuals who are not at risk of developing depression (Chapters 5, 6 and 7). The majority of previous research

into such interventions has occurred within population samples selected due to their depressive predisposition (Buchanan et al., 1999; Seligman et al., 2007). The current research shows that interventions can be used to enhance positive attributes regardless of the individual's natural disposition. In doing so, the current research adds to the area of positive psychology research which despite an initial drive to focus on enhancing the good, has continued to focus on fixing what is broken.

Secondly, the current findings contribute to understanding surrounding the relationship between explanatory style and stress. The results presented throughout this thesis highlight that the CBT-based optimism intervention was successful at reducing the amount of perceived cognitive and negative affectivity reported by student, and neophyte, teachers. The results suggest that stress was reduced via individuals adapting their thought processes regarding stressful situations. This provides evidence to suggest that optimism impacts upon stress via the appraisal process. Furthermore, the longitudinal data suggests that there was also a dose-response present in the training (see Chapter 7), providing criteria for causality (Walsh, 1994, Hill, 1965) and supporting the suggestion that optimism leads to lower levels of stress.

The current findings also have implications for research into managing teacher stress. Kyriacou (2000) and Jarvis (2002) both conducted comprehensive teacher-stress literature reviews and both concluded that one area which required further research was that of effective teacher-stress interventions. The current findings suggest that a CBT-based optimism training intervention was successful at reducing teacher-stress. Moreover, the field based nature of the research also

means that the current findings have practical implications in terms of managing teacher stress. The current results support the implementation of CBT-based optimism interventions as part of professional skills modules on future PGDE courses. Results indicate that the positive effects of such interventions are not only apparent during teacher-educator courses, but also during the first year of teaching.

Finally, the current thesis suggests that there is a relationship between explanatory style and dispositional optimism (see Chapters 3 and 7). Furthermore, the current findings imply that by enhancing explanatory style, dispositional optimism will also be increased, although at a slower rate due to its dispositional nature (Chapter 7). Further research is required to explore this relationship fully.

## **8.5. Summary**

In conclusion, the current thesis demonstrated that a CBT-based optimism training programme was a successful tool for reducing stress in student, and neophyte, teachers. Specifically, prolonged CBT-based optimism training had more beneficial longitudinal effects, in enhancing optimistic explanatory style and dispositional optimism, in reducing cognitive stress and negative affectivity. These findings support the implementation of CBT-based optimism training programmes as part of a professional skills module on PGDE courses as a means of buffering students against the stress associated with the teaching occupation, both during their training and their primary year of teaching. The current thesis also highlights the potential relationship between optimistic explanatory style

(Amramson, et al., 1978; Seligman, 2006) and dispositional optimism (Scheier & Carver, 1985). A CBT-based intervention, aimed at enhancing optimistic explanatory style, appears to have had a positive, albeit delayed, impact on dispositional optimism.

#### *8.5.1. Recommendations for Future Research*

The current thesis presents some interesting conclusions, yet it also highlights some important avenues for future research. Findings suggest that optimism impacts upon the stress-appraisal process. However, further research is required in order to fully explore where and how optimism impacts upon the appraisal process. Changing one's thought process could affect their perception of an event (primary appraisal), or the appraisal of their coping resources (secondary appraisal). Therefore, further research is needed to explore whether optimism impacts upon the primary appraisal process, secondary appraisal process, or on both simultaneously. The current thesis also demonstrates that the positive effects of a CBT-based optimism training programme remain up to 12 months after completion of the intervention, and 6 months into the neophyte teacher's first year of teaching. It is suggested that further research may want to adopt a longer research design in order to explore whether these positive effects remain stable or whether there is a decay effect associated with them which develops further than a year down the line.

Finally, the current thesis proposes the presence of a relationship between optimistic explanatory style (Amramson et al., 1978; Seligman et al., 2007) and dispositional optimism (Scheier & Carver, 1985). Due to the conflicting nature



of the current results and previous empirical research in the area, further research is required to explore the nature of this relationship. It is suggested that any interventional research undertaken regarding the manipulation of explanatory style and dispositional optimism should be longitudinal in design to allow for the slow process of changing individuals schemas.

## References

- Abramson, L.Y., Alloy, L.B., Hankin, B.L., Clements, C.M., Zhu, L., Hogan, M.E., et al. (2000). Optimistic cognitive styles and invulnerability to depression. In J.E. Gillham (Ed.), *The Science of Optimism and Hope: Research Essays in Honor of Martin E.P. Seligman*. Radnor, PA: Templeton Foundation Press
- Abramson, Y.L., Seligman, M.E.P., & Teasdale, J.D. (1978). Learned helplessness in humans: critique and reformulation. *Journal of Abnormal Psychology*, 87, 49-74.
- Banister, P., Burman, E., Parker, I., Taylor, M., & Tindall, C. (1994). *Qualitative Methods in Psychology: A Research Guide*. Buckingham: Open University Press.
- BBC News Online Article. (2007, October 10). More Funds for Talking Therapies. BBC News Online (<http://news.bbc.co.uk/1/hi/health/7037400.stm>)
- Beck, J.S. (1995). *Cognitive Therapy: Basics and Beyond*. New-York: Guilford.
- Beck, A.T., Emery, G., & Greenberg, R.L. (1985). *Anxiety Disorders and Phobias: A Cognitive Perspective*. New York: Basic Books.
- Beehr, T.A., Canali, K.G., & Wallwey, D.A. (2001). Back to basics: Re-examination of Demand-Control Theory of occupational stress. *Work and Stress*, 15(2), 115-130.
- Benmansour, N. (1998). Job Satisfaction, stress and coping strategies among Moroccan high school teachers. *Mediterranean Journal of Educational Studies*, 3, 13-33.
- Bernstein, D. A., Clarke-Stewart, A., Roy, E. J., & Wickens, C. D. (1997) 4<sup>th</sup> ed. *Psychology*. Houghton Mifflin Company, Boston:NY.
- Boman, P., Smith, D.C., & Curtis, D. (2003). Effects of pessimism and explanatory style and development of anger in children. *School Psychology International*, 24(1), 80-94.

- Breakwell, G.M. (1990). *Interviewing: Problems in Practice*. London: BPS & Routledge Ltd.
- Buchanan, G.M., Gardenswartz, C.A.R., & Seligman, M.E.P. (1999). Physical health following a cognitive-behavioural intervention. *Prevention and Treatment*, 2(10).
- Burns, M.O., & Seligman, M.E. (1989). Explanatory style across the life span: Evidence for stability over 52 years. *Journal of Personality and Social Psychology*, 56, 471-477.
- Busseri, M.A., Choma, B.L., & Sadava, S.W. (2009). "As good as it gets" or "The best is yet to come"? How optimists and pessimists evaluate their past, present, and anticipated future life satisfaction. *Personality and Individual Differences*, 47, 352-356.
- Butler, A.C., Chapman, J.E., Forman, E.M., & Beck, A.T. (2006). The empirical status of cognitive-behavioural therapy: A review of meta-analyses. *Clinical Psychology Review*, 26, 17-31.
- Bryant, D. (2005). *The relationship between learned optimism and stress in student teachers*. Unpublished MSc Thesis, The University of Edinburgh, Edinburgh.
- Caplan, R.D., Cobb, S., French, S.R.P., Harrison, R.V., & Pinneau, S.R. (1975). *Job Demands and worker health: Main effects and Occupational Differences*. Washington, DC: U.S. Government Printing Office.
- Carver, C.S. & Scheier, M.F. (1982). Control Theory: A Useful Conceptual Framework for Personality-Social, Clinical, and Health Psychology. *Psychological Bulletin*. 92(1), 111-135.
- Carver, C.S., Scheier, M.F., & Weintraub, J.K. (1989). Assessing coping strategies: a theoretically based approach. *Journal of Personality and Social Psychology*, 56, 267-283.
- Chambers, G.N. & Roper, T. (2000). Why students withdraw from initial teacher training. *Journal of Education for Teaching*, 26(1), 25-43.
- Chang, E.C. (1998). Dispositional Optimism and Primary and Secondary Appraisal of a Stressor: Controlling for Confounding Influences and

Relations to Coping and Psychological and Physical Adjustment. *Journal of Personality and Social Psychology*, 74(4), 1109-1120.

Chang E.C., Maydeu-Olivares, A., & D’Zurilla, T.J. (1997). Dispositional optimism and pessimism as partially independent constructs: relationship to positive and negative affectivity and psychological well being. *Personality and Individual Differences*, 23, 433-440.

Churchill, W. (1874-1965). On [www.quotebooks.com](http://www.quotebooks.com).

Clark, D.A. (1995). Perceived limitations of standard cognitive therapy: a consideration of efforts to revise Beck’s theory and therapy. *Journal of Cognitive Psychotherapy*, 9(3), 153-172.

Cockburn, A.D. (1996). Primary Teachers’ knowledge and acquisition of stress-relieving strategies. *British Journal of Educational Psychology*, 66, 399-410.

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24(4), 385-396.

Cox, T. & Ferguson, E. (1991). Individual difference, stress and coping. In: Cooper, C. & Payne, L. (Eds). *Personality and stress: individual differences in the stress process*. Chichester: Wiley & Sons, pp 7-29.

Creswell, J.W. (1994). *Research design: Qualitative and Quantitative approaches*. Thousand Oaks, CA: Sage.

Cushway, D., Tyler, P.A., & Nolan, P. (1996). Development of a stress scale for mental health professional. *British Journal of Clinical Psychology*, 35, 279-295.

David, D., Montgomery, G.H., & Bovbjerg, D.H. (2006). Relations between coping responses and optimism-pessimism in predicting anticipatory psychological distress in surgical breast cancer patients. *Personality and Individual Differences*, 40, 203-213.

DeVon, H.A., Block, M.E., Moyle-Wright, P., Ernst, D.M., Hayden, S.J., Lazzara, D.J. et al. (2007). A psychometric toolbox for testing validity and reliability. *Journal of Nursing Scholarship*, 39(2), 155-164.

- DeVon, H.A. & Ferrans, C.E. (2003). The psychometric properties of four quality of life instruments used in cardiovascular populations. *Journal of Cardiopulmonary Rehabilitation*, 23, 122-138.
- Duke, D.L. (1984). *Teaching – The imperilled profession*. Albany, NY State: University of New York Press.
- Education Service Advisory Committee. (1998). *Managing Work-related Stress: a guide for managers and teachers in the schools*, 2nd Edn (London, HMSO).
- Ehlers, A. & Clark, D.M. (2000). A cognitive model of post-traumatic stress disorder. *Behaviour Research and Therapy*, 38, 319-345.
- Endacott, R. (2005). Clinical research 4: qualitative data collection and analysis. *Intensive and Critical Care Nursing*, 21, 123-127.
- Eysenck, H. (1997). *Dimensions of Personality*. London: Transaction Publishers.
- Fives, H., Hamman, D., & Olivarez, A. (2007). Does burnout begin with student-teaching? Analyzing efficacy, burnout, and support during the student-teaching semester. *Teaching and Teacher Education*, 23, 916-934.
- Folkman, S. & Lazarus, R.S. (1988). *The Ways of Coping Questionnaire*. Palo Alto, CA: Consulting Psychologists Press.
- Frankenhauser, M. (1991). A biopsychosocial approach to work life issues. In V.J. Johnson & G. Johansson (Eds.). *The psychosocial work environment and health: work organisation, democratization and health*. Amityville, NY: Baywood. Pp49-60.
- Frankl, V. (1963). *Man's Search for Meaning: An Introduction to Logotherapy*. New York: Washington Square Press.
- Free, M.L. (2007). *Cognitive Therapy in Groups*. (2<sup>nd</sup> ed.). West Sussex: John Wiley & Sons Ltd.
- Freudenberger, H. (1974). Staff Burnout. *Journal of Social Issues*, 30, 159-165.

- Gardner, B., Rose, J., Mason, O., Tyler, P., & Cushway, D. (2005). Cognitive therapy and behavioural coping in the management of work-related stress: an intervention study. *Work & Stress*, 19(2), 137-152.
- General Teaching Council for Scotland (GTCS). (2009) [www.gtcs.org.uk](http://www.gtcs.org.uk).
- Glassman, W. & Hadad, M. (2004). *Approaches to Psychology* (4<sup>th</sup> ed.). Buckingham, UK: Open University Press.
- Gliner, J. A., Morgan, G. A., & Leech, N. L. (2009) 2<sup>nd</sup> Ed. *Research Methods in Applied Settings: An integrated approach to design and analysis*. Routledge, Hove: East Sussex
- Goldberg, D. (1978). As Referenced In Gardner, B., Rose, J., Mason, O., Tyler, P., & Cushway, D. (2005). Cognitive therapy and behavioural coping in the management of work-related stress: an intervention study. *Work & Stress*, 19(2), 137-152.
- Gould, D. Dieffenbach, K., & Moffett, A. (2002). Psychological characteristics and their development in Olympic champions. *Applied Sport Psychology*. 14(3), 172-204.
- Greene, J.C. & Caracelli, V.J. (2003). Making paradigmatic sense of mixed methods practice. In A. Tashakkori & C. Teddie (Eds.), *Handbook of mixed methods in social and behavioural research*, Thousand Oaks: Sage Publications. Pages 91-110.
- Guglielmi, R.S. & Tatrow, K. (1998). Occupational stress, burnout and health in teachers: a methodological and theoretical analysis. *Review of Educational Research*, 68, 61-99.
- Hansen, N.B., Lambert, M.J., & Forman, E.M. (2002). The Psychotherapy Dose-Response Effect and It's Implications for Treatment Delivery Services. *Clinical Psychology: Science and Practice*, 9(3), 329-343.
- Harvey, L., Inglis, S.J., Espie, C.A. (2002). Insomniacs' reported use of CBT components and relationship to long-term clinical outcome. *Behaviour and Research Therapy*, 40, 75-83.

- Health and Safety Executive (HSE), Press Release. (2005). Published online at:  
<http://www.hse.gov.uk/press/2005/e05092.htm>
- Heider, F. (1958). *The Psychology of Interpersonal Relations*. New York: Wiley.
- Hershebrger, P.J., Zimmerman, G.L., Markert, R.J., Kirkham, K.E., & Bosworth, M.F. (2000). Explanatory style and the performance of residents. *Medical Education*, 34, 676-678.
- Hill, A. (2008, August 31). Depressed, stressed: teachers in crisis. The Observer (Online).
- Hill, A.B. (1965). The environment and disease: association or causation? *Proceed Royal Society of Medicine – London*, 58, 295-300.
- Hirsch, J.K. & Conner, K.R. (2006). Dispositional and explanatory style optimism as potential moderators of the relationship between hopelessness and suicidal ideation. *Suicide and Life-Threatening Behavior*, 36(6), 661-669.
- Hofler, M. (2005). The Bradford Hill considerations on causality: a counterfactual perspective. *Emerging Themes in Epidemiology*, 2(11),
- Howell, D. C., (2009). Published online at :  
<http://www.uvm.edu/~dhowell/StatPages/StatHomePage.html>
- Isaacowitz, D.M. (2005). Correlates of well-being in adulthood and old age: A tale of two optimisms. *Journal of Research in Personality*, 39, 224-244.
- Jackson, B., Sellers, R.M., & Peterson, C. (2002). Pessimistic explanatory style moderates the effects of stress on physical illness. *Personality and Individual Differences*, 32, 567-573.
- Jarvis, M. (2002). Teacher Stress: A Critical Review of Recent Findings and Suggestions for Future Research. *Stress News*, 1-7.
- Jaycox, L.H., Reivich, K.J., Gillham, J., & Seligman, M.E.P. (1994). Preventing depressive symptoms in school children. *Behaviour Research and Therapy*, 32, 801-816.

- Johnson, S., Cooper, C., Cartwright, S., Donald, I., Taylor, P., & Millet, C. (2005). The experience of work-related stress across occupations. *Journal of Managerial Psychology*, 20(2), 178-187.
- Johnson, R.B., & Onwuegbuzie, A.J. (2004). Mixed Methods Research: A Research Paradigm Whose Time Has Come. *Educational Researcher*, 33(7), 14-26.
- Kamin, S., Richards, H., & Collins, D. (2007). Influences on talent development process of non-classical musicians: psychological, social and environmental influences. *Music Education and Research*, 9(3), 449-468.
- Karademas, E.C. (2006). Self-efficacy, social support and well-being. The mediating role of optimism. *Personality and Individual Differences*, 40, 1281-1290.
- Karasek, R.A., (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative Science Quarterly*, 24, 285-307.
- Karasek, R.A. & Theorell, T. (1990). *Healthy Work*. New York: Basic Books.
- Kasl, S.V. & Rapp, S.R. (1991). Stress, Health, and well-being: The role of individual differences. In C.L. Cooper & R. Payne (Eds.). *Personality and Stress: Individual Differences in the Stress Process*. Chichester: Wiley & Sons. Pp269-284.
- Kazadin, A. E. (2010) 4<sup>th</sup> Ed. *Research Design in Clinical Psychology*. Allyn & Bacon. Boston:MA.
- Kokkinos, C.M. (2007). Job stressors, personality and burnout in primary school teachers. *British Journal of Educational Psychology*, 77, 229-243.
- Krippendorff, K. (1980). *Content Analysis: An Introduction to its Methodology*. Beverly Hills: Sage.
- Kubzansky, L.D., Sparrow, D., Vokonas, P., & Kawachi, I. (2001). Is the Glass Half Empty or Half Full? A Prospective Study of Optimism and Coronary Heart Disease in the Normative Aging Study. *Psychosomatic Medicine*, 63, 910-916.



- Kyriacou, C. (2001). Teacher Stress: directions for future research. *Educational Review*, 53(1), 27-35.
- Lai, J.C.L. (2009) Dispositional optimism buffers the impact of daily hassles on mental health in Chinese adolescents. *Personality and Individual Differences*, 47, 247-249.
- Laurence-Baker, E. (1998, October 27). Truth on Trial? *The Guardian*, p14.
- Lazarus, R.S. (1993). Coping theory and research: the past, present and future. *Psychosomatic Medicine*, 55, 234-247.
- Lazarus, R.S. (1999). *Stress and Emotion: A New Synthesis*. New York: Springer Pub. Co.
- Lazarus, R.S., & Folkman, S. (1984). *Stress, Appraisal and Coping*. New York: Springer.
- Lhospital, A.S. & Gardner, A. (2009). Changes in teacher stress through participation in pre-referral intervention teams. *Psychology in Schools*, 46(10), 1098-1112.
- Lin, E.H. & Peterson, C. (1990). Pessimistic explanatory style and response to illness. *Behaviour Research and Therapy*, 28, 243-248.
- Lobel, M., Yali, A.M., Zhu, W., DeVincent, C.J., & Meyer, B.A. (2002). Beneficial associations between optimistic disposition and emotional distress in high-risk pregnancy. *Psychology & Health*, 17(1), 77-95.
- Malim, T. & Birch, A. (1998). *Introductory Psychology*. Hampshire: Palgrave Macmillan.
- Martin-Krumm, C.P., Sarrazin, P., Fontayne, P., & Famose, J.P. (2001). Validation of the Sport Explanatory Style Questionnaire. *Proceeding of the Ninth International Congress of the French Association of sport and exercise researchers*. Valence, France, 1-3 November.
- Martin-Krumm, C.P., Sarrazin, P.G., Peterson, C., & Famose, J. (2003). Explanatory style and resilience after sports failure. *Personality and Individual Differences*, 35, 1685-1695.

- Maslach, C. (2003). Job burnout: New directions in research and intervention. *Current Directions in Psychological Science*, 12, 189-192.
- Mertens, D M. (2010). Research Evaluation in Education and Psychology – Integrating Diversity with Quantitative, Qualitative and Mixed Methods. Thousand Oaks, CA: Sage.
- Miller, E.T., Neal, D.J., Roberts, L.J., Baer, J.S., Cressler, S.O., Metrik, J., & Marlatt, A.G. (2002). Test-Retest reliability of alcohol measures: is there a difference between internet-based measures and traditional methods? *Psychology of Addictive Behaviors*, 16(1), 56-63.
- Mintz, J. (2007). Psychodynamic perspectives on teacher stress. *Psychodynamic Practice*, 13(2), 153-166.
- Montgomery, C., & Rupp, A.R. (2005). A meta-analysis for exploring the diverse causes and effects of stress in teachers. *Canadian Journal of Education*, 28 (3), 458-486.
- Morse, J. (2003) A Review committee's guide for evaluating qualitative proposals. *Qualitative Health Research*, 13, 833-851.
- Motowidlo, S.J., Packard, J.S., & Manning, M.R. (1986). Occupational Stress: It's Causes and Consequences for Job Performance. *Journal of Applied Psychology*, 71(4), 618-629.
- Muijs, D. (2004). *Doing Quantitative Research in Education: With SPSS*. CA: Sage
- National Institute for Health and Clinical Excellence. (1998). *Cognitive behavioural therapy for the management of common mental health problems. Commissioning Guide. Implementing NICE Guidance*.
- Neenan, M. & Dryden, W. (2004). *Cognitive Therapy*, East Sussex: Brunner-Routledge
- Newman, C.F., Leahy, R.L., Beck, A.T., Reilly-Harrington, N.A., & Gyulai, L. (2002). *Bipolar Disorder: A Cognitive Therapy Approach*. Washington, DC: American Psychological Association

- Pavlov, I.P. (1927). *Conditioned Reflexes: An Investigation of the Physiological Activity of the Cerebral Cortex*. Translated and Edited by G. V. Anrep. London: Oxford University Press
- Payne, R.L. & Fletcher, B.C. (1983). Job demands, supports, and constraints as predictors of psychological strain among school teachers. *Journal of Vocational Behaviour*, 22, 136-147.
- Pearsall, J. (2002). *Concise Oxford English Dictionary*. Oxford: The Oxford University Press.
- Peterson, C. (2000). The future of optimism. *American Psychologist*, 55(1), 44-55.
- Peterson, C. & Seligman, M.E.P. (1984). Causal explanations as a risk factor for depression: theory and evidence. *Psychological Review*, 91, 347-374.
- Peterson, C., Seligman, M.E.P., & Vaillant, G.E. (1988). Pessimistic explanatory style as a risk factor for physical illness: a thirty-five year longitudinal study. *Journal of Personality and Social Psychology*, 55, 23-27.
- Peterson, C., Semmel, A., Baeyer, C., Abramson, L.Y., Metalsky, G.I., & Seligman, M.E.P. (1982). The Attributional Style Questionnaire. *Cognitive Therapy and Research*, 6(3), 287-299.
- Peterson, C. & Vallanova, P. (1988). An Expanded Attributional Style Questionnaire. *Journal of Abnormal Psychology*, 97, 87-89.
- Pithers, R.T. & Soden, R. (1998). Scottish and Australian teacher stress and strain: a comparative study. *British Journal of Educational Psychology*, 68, 269-279.
- Putwain, D. (2007). Researching academic stress and anxiety in students: some methodological considerations. *British Educational Research Journal*, 33(2), 207-219.
- Rees, C.S., McEvoy, P., & Nathan, P.R. (2005). Relationships between homework completion and outcome in cognitive behaviour therapy. *Cognitive Behaviour Therapy*, 34, 242-247.

- Reivich, K., Gillham, J. (2003). Learned Optimism: the measurement of explanatory style. In S. J. Lopez & C. R. Snyder (Eds) *Positive psychological assessment: A handbook of models and measures*. Pp57-74. Washington DC: APA.
- Richards, H. (2004) Coping in sport. In D. Lavallee, J. Thatcher, & M. Jones (Eds) *Coping and Emotion in Sport*. Pp 27-50. Nova Science Publishers, Inc.
- Rothman., K.J. & Greenland, S (Eds.). (1998). *Modern Epidemiology*, (2<sup>nd</sup> ed.). Philadelphia:Lippincott Williams & Wilkins.
- Rosnow, R.L. & Rosenthal, R. (1989). Statistical procedures and the justification of knowledge in psychological science. *American Psychologist*, 44, 1276-1284.
- Ruthig, J.C., Haynes, T.L., Stupensky, R.H., & Perry, R.P. (2009). Perceived Academic Control: mediating the effects of optimism and social support on college students' psychological health. *Social Psychology Education*, 12, 233-249.
- Salkovskis, P.M. (1999). Understanding and treating obsessive compulsive disorder. *Behaviour Research & Therapy*, 37, 529-552.
- Salzer, M.S., Bickman, L., Lambert, L.W. (1999). Dose effect relationship in children's psychotherapy services. *Journal of Consulting and Clinical Psychotherapy*. 62(2), 228-238.
- Schaffer, C.S., Shapiro, J., Sank, L.I., & Coghlan, D.J. (1981). Positive Changes in Depression, Anxiety, and Assertion Following Individual and Group Cognitive Behaviour Therapy Intervention. *Cognitive Therapy and Research*, 5(2), 149-157.
- Scheier, M.F. & Carver, C.S. (1983). Self-directed attention attention and the comparison of the self with standards. *Journal of Experimental and Social Psychology*, 19, 205-222.

- Scheier, M.F., & Carver, C.S. (1985). Optimism, coping and health: assessment and implications of generalized outcome expectancies. *Health Psychology*, 4(3), 219-247.
- Scheier, M.F. & Carver, C.S. (1992). Effects of optimism on psychological and physical well-being: theoretical overview and empirical update. *Cognitive Therapy and Research*, 16(2), 201-228.
- Scheier, M.F., Weintraub, J.K., & Carver, C.S. (1986). Coping with stress: divergent strategies of optimists and pessimists. *Journal of Personality and Social Psychology*, 51, 1257-1264.
- Scheier, M.F., Matthews, K.A., Owens, J.F., Magovern, G.J., Sr., Lefebvre, R.C., Abbott, R.A., & Carver, C.S. (1989). Dispositional optimism and recovery from coronary artery bypass surgery: The beneficial effects on physical and psychological well-being. *Journal of Personality and Social Psychology*, 57, 1024-1040.
- Schulman, P. (1999). Applying learned optimism to increase sales productivity. *Journal of Personal Selling and Sales Management*, 19, 31-37.
- Schulman, P., Castellon, C., & Seligman, M.E.P., (1989). Assessing explanatory style: the content analysis of verbatim explanations and the attributional style questionnaire. *Behaviour Research and Therapy*, 27, 505-512.
- Schwartz, J.E., & Pickering, T.G. (1996). Work-Related Stress and Blood Pressure: Current Theoretical Models and Considerations From a Behavioural Medicine Perspective. *Journal of Occupational Health Psychology*, 1(3), 287-310.
- Siegrist, J. (1996). Adverse health effects of high-effort/low-reward conditions. *Journal of Occupational Health Psychology*, 1, 27-41.
- Seligman, M.E.P. (2006). *Learned Optimism: How to change your mind and your life*. New York: Vintage Books.
- Seligman, M.E.P. & Csikszentmihalyi, M. (2000). Positive Psychology. An Introduction. *American Psychologist*, 55(1), 5-14.

- Seligman, M.E.P., & Schulman, P. (1986). Explanatory style as a predictor of productivity and quitting among life insurance sales agents. *Journal of Personality and Social Psychology*, 50, 832-838.
- Seligman, M.E.P., Schulman, P., & Tryon, A.M. (2007). Group prevention of depression and anxiety symptoms. *Behaviour Research and Therapy*. 45, 1111-1126.
- Seligman, M.E.P., Steen, T.A., Park, N., & Peterson, C. (2005). Positive Psychology Progress. Empirical Validation of Interventions. *American Psychologist*, 60(5), 410-421.
- Seyle, H. (1956). *The Stress of Life*. New York: McGraw Hill.
- Sharp, D.M., Power, K.G., Swanson, V. (2004). A comparison of the efficacy and acceptability of group versus individual cognitive behaviour therapy of panic disorder and agoraphobia in primary care. *Clinical Psychology and Psychotherapy*, 11, 73-82.
- Skinner, B.F. (1950). Are Theories of Learning Necessary? *Psychological Review*, 57, 193-216.
- Sperry, L. (1999). *Cognitive Behaviour Therapy of DSM-IV Personality Disorders*. Philadelphia, PA: Brunner/Mazel.
- Strauss, A. & Corbin, J. (1990). *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Newbury Park, CA: Sage.
- Tashakkori, A., & Creswell, J. W. (2007). Editorial: The new era of mixed methods. *Journal of Mixed Methods Research*, 1, 3-7.
- Teddlie, C., & Tashakkori, A. (2009) *Foundations of mixed research methods*. Thousand Oaks, CA: sage.
- Tennen, H., Affleck, G., Aremlı, S., & Carney, M.A. (2000). A daily process approach to coping: linking theory, research and practice. *American Psychologist*, 55, 626-636.
- Thomas, J.R. & Nelson, J.K. (1990). *Research Methods in Physical Activity*. (2<sup>nd</sup> ed). Champaign, Illinois: Human Kinetics Books.

- Tomakowsky, J., Lumley, M.A., Markowitz, N., & Frank, C. (2001). Optimistic explanatory style and dispositional optimism in HIV-infected men. *Journal of Psychosomatic Research*, 51, 577-587.
- Travers, C.J. & Cooper, C.L. (1996). *Teachers Under Pressure: stress in the teaching profession*. London: Routeledge.
- Tuten, T.L., & Neidermeyer, P.E. (2004). Performance, satisfaction and turnover in call centers. The effects of stress and optimism. *Journal of Business Research*, 57, 26-34.
- Tschannen-Moran, M. & Woolfolk Hoy, A. (2001). Teacher efficacy: capturing an elusive construct. *Teacher and Teacher Education*, 17, 783-805.
- Walsh, R. (1994). Effects of maternal smoking on adverse pregnancy outcomes: examination of the criteria of causation. *Human Biology*, 66(6), 1059 – 1092.
- Watson, D., Clark, L.A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology*, 96, 236-250.
- Weiner, B. (1972). Attribution theory, achievement motivation, and the educational process. *American Educational Research Association*. 42(2), 203-215.
- Weiner, B. (1985). An attribution theory of achievement motivation and emotion. *Psychological Review*, 92(4), 548-573.
- Weishaar, M.E. (1996). Developments in cognitive therapy. In W. Dryden (Ed.). *Developments in Psychotherapy: Historical Perspectives*. London: Sage Publications
- Wisniewski, L., & Gargiulo, R.M. (1997). Occupational stress and burnout among special educators: a review of the literature. *The Journal of Special Education*, 31(3), 325-346.

## APPENDIX 1

### Consent Form for Participants from the University of Edinburgh

#### Responses to Teacher Training Placements



#### Declaration of Informed Consent

The aim of this project is to investigate the responses to being on teaching placement throughout the PGDE year. This research is intended to extend current understanding by using several different approaches to examining responses during a sustained period of work. These will be collected through written self-report (questionnaire, checklist and reflective diary).

Part of this study involves four teaching workshops and possibly a couple of smaller tutorials. These aim to reduce the amount of stress experienced, whilst on placement and subsequently, in the workplace.

The type of data collected will be/ will involve you in the following:

- Recording thoughts and behaviours you used in responding to the demands encountered.
- Completing short questionnaires and a checklist on each day of data collection during the placements.
- Completing a brief reflective diary at the end of each placement week.

This information will be used for the preparation of research publications and academic reports. All data will be confidential, no individual will be identifiable by name, school, or other means in any report that should result from this research.

1. I have been informed that the general purpose of this study is to assess response to the demands of placement (thoughts and behaviour).



2. I have been informed that my participation in this study will involve me completing short questionnaires, checklist and diary on collection days throughout the placement.
3. I have been informed that any information or data I provide will be kept confidential and that my identity will be kept anonymous in any presentation of this material.
4. I have been informed that there are no known expected discomfort or risks involved with my participation in this study, other than those associated with placement activities.
5. I have been informed that the researchers will gladly answer any questions regarding the procedures in this study at any stage
6. I have been informed that I am free to withdraw from any part of the study at any time
7. I understand that if I have any concerns about this project I can contact, first of all, Danielle Bryant or John Sproule both at PESLS, University of Edinburgh, Holyrood Road, Edinburgh, EH8 8AQ.
8. I acknowledge I have received a copy of this form. I have read and understand the above instructions regarding my participation in this study.

NAME OF PARTICIPANT \_\_\_\_\_

Signature of participant: \_\_\_\_\_

Date:

Signature of researcher: \_\_\_\_\_

Danielle Bryant (0131 6516043)

Danielle.L.Bryant@education.ed.ac.uk

## APPENDIX 2

### Consent Form for Participants from Strathclyde University

#### Responses to Teacher Training Placements



#### Declaration of Informed Consent

The aim of this project is to investigate the responses to being on teaching placement throughout the PGDE year. This research is intended to extend current understanding by using several different approaches to examining responses during a sustained period of work. These will be collected through written self-report (questionnaire, checklist and reflective diary).

The type of data collected will be/ will involve you in the following:

- Recording thoughts and behaviours you used in responding to the demands encountered.
- Completing short questionnaires and a checklist on each day of data collection during the placements.
- Completing a brief reflective diary at the end of each placement week.

This information will be used for the preparation of research publications and academic reports. All data will be confidential, no individual will be identifiable by name, school, or other means in any report that should result from this research.

9. I have been informed that the general purpose of this study is to assess response to the demands of placement (thoughts and behaviour).
10. I have been informed that my participation in this study will involve me completing short questionnaires, checklist and diary on collection days throughout the placement.
11. I have been informed that any information or data I provide will be kept confidential and that my identity will be kept anonymous in any presentation of this material.

12. I have been informed that there are no known expected discomfort or risks involved with my participation in this study, other than those associated with placement activities.
13. I have been informed that the researchers will gladly answer any questions regarding the procedures in this study at any stage
14. I have been informed that I am free to withdraw from any part of the study at any time
15. I understand that if I have any concerns about this project I can contact, first of all, Danielle Bryant or John Sproule both at PESLS, University of Edinburgh, Holyrood Road, Edinburgh, EH8 8AQ.
16. I acknowledge I have received a copy of this form. I have read and understand the above instructions regarding my participation in this study.

NAME OF PARTICIPANT \_\_\_\_\_

Signature of participant: \_\_\_\_\_

Date:

Signature of researcher: \_\_\_\_\_

Danielle Bryant (0131 6516043)

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## APPENDIX 3

### Attributional Style Questionnaire

#### MEASURE OF RESPONSE

Matriculation Number: \_\_\_\_\_

Date: \_\_\_\_\_

#### Instructions

Please try to vividly imagine yourself in the situations that follow. If such a situation happened to you, what would you feel would have caused it? While events may have many causes, we want you to pick only one – the *major* cause if this happened to *you*. Please write this cause in the blank provided after each event. Next we want you to answer some questions about the cause and a final question about the situation. To summarize, we would like you to:

1. Read each situation and vividly imagine it happening to you.
2. Decide what you feel would be the *major* cause of the situation if it happened to you.
3. Write one cause in the blank provided.
4. Answer three questions about the *cause*.
5. Answer one question about the *situation*.
6. Go onto the next situation.

**1. You meet a friend who compliments you on your appearance.**

- Write down the *one* major cause

\_\_\_\_\_

- Is the cause of the compliment due to something about you or to something about other people or circumstances? (circle one number)

Totally due to other  
people or  
circumstances

1 2 3 4 5 6 7

Totally due  
to me

- In the future when you receive a compliment will this cause again be present? (circle one number)

Will never again be  
present

1 2 3 4 5 6 7

Will always be present

- Is the cause something that just influences compliments you receive or does it also influence other areas of your life? (circle one number)

Influences just this particular situation      1   2   3   4   5   6   7      Influences all situations in my life

- How important would this situation be if it happened to you? (circle one number)

Not important at all      1   2   3   4   5   6   7      Extremely important

## 2. You have been looking for a job unsuccessfully for some time.

- Write down the *one* major cause

\_\_\_\_\_

- Is the cause of your unsuccessful job search due to something about you or to something about other people or circumstances? (circle one number)

Totally due to other people or circumstances      1   2   3   4   5   6   7      Totally due to me

- In the future when looking for a job, will this cause again be present? (circle one number)

Will never again be present      1   2   3   4   5   6   7      Will always be present

- Is the cause something that just influences looking for a job or does it also influence other areas of your life? (circle one number)

Influences just this particular situation      1   2   3   4   5   6   7      Influences all situations in my life

- How important would this situation be if it happened to you? (circle one number)

Not important at all      1   2   3   4   5   6   7      Extremely important

### 3. You become very rich.

- Write down the *one* major cause

\_\_\_\_\_

- Is the cause of becoming rich due to something about you or to something about other people or circumstances? (circle one number)

Totally due to other  
people or  
circumstances

1 2 3 4 5 6 7

Totally due  
to me

- In the future if you receive more money will this cause again be present? (circle one number)

Will never again be  
present

1 2 3 4 5 6 7

Will always be present

- Is the cause something that just influences you finances or does it also influence other areas of your life? (circle one number)

Influences just this  
particular situation

1 2 3 4 5 6 7

Influences all situations  
in my life

- How important would this situation be if it happened to you? (circle one number)

Not important at all

1 2 3 4 5 6 7

Extremely important

### 4. A friend comes to you with a problem and you don't try to help.

- Write down the *one* major cause

\_\_\_\_\_

- Is the cause of this due to something about you or to something about other people or circumstances? (circle one number)

Totally due to other  
people or  
circumstances

1 2 3 4 5 6 7

Totally due  
to me

- In the future when this happens will this cause again be present? (circle one number)

Will never again be present      1   2   3   4   5   6   7      Will always be present

- Is the cause something that just influences whether you try to help or does it also influence other areas of your life? (circle one number)

Influences just this particular situation      1   2   3   4   5   6   7      Influences all situations in my life

- How important would this situation be if it happened to you? (circle one number)

Not important at all      1   2   3   4   5   6   7      Extremely important

**5. You give an important talk in front of a group and the audience reacts negatively.**

- Write down the *one* major cause

\_\_\_\_\_

- Is the cause of the negative reaction due to something about you or to something about other people or circumstances? (circle one number)

Totally due to other people or circumstances      1   2   3   4   5   6   7      Totally due to me

- In the future when you experience a negative reaction will this cause again be present? (circle one number)

Will never again be present      1   2   3   4   5   6   7      Will always be present

- Is the cause something that just influences people's reactions or does it also influence other areas of your life? (circle one number)

Influences just this particular situation      1   2   3   4   5   6   7      Influences all situations in my life





**7. You meet a friend you acts hostilely toward you.**

- Write down the *one* major cause

\_\_\_\_\_

- Is the cause of this hostility due to something about you or to something about other people or circumstances? (circle one number)

Totally due to other  
people or  
circumstances

1 2 3 4 5 6 7

Totally due  
to me

- In the future when someone acts hostilely towards you will this cause again be present? (circle one number)

Will never again be  
present

1 2 3 4 5 6 7

Will always be present

- Is the cause something that just influences this particular situation or does it also influence other areas of your life? (circle one number)

Influences just this  
particular situation

1 2 3 4 5 6 7

Influences all situations  
in my life

- How important would this situation be if it happened to you? (circle one number)

Not important at all

1 2 3 4 5 6 7

Extremely important

**8. You can't get all the work done that others expect of you.**

- Write down the *one* major cause

\_\_\_\_\_

- Is the cause of due to something about you or to something about other people or circumstances? (circle one number)

Totally due to other  
people or  
circumstances

1 2 3 4 5 6 7

Totally due  
to me

- In the future when you can't get all the work done will this cause again be present? (circle one number)

Will never again be present      1   2   3   4   5   6   7      Will always be present

- Is the cause something that just influences this particular situation or does it also influence other areas of your life? (circle one number)

Influences just this particular situation      1   2   3   4   5   6   7      Influences all situations in my life

- How important would this situation be if it happened to you? (circle one number)

Not important at all      1   2   3   4   5   6   7      Extremely important

#### 9. **Your spouse (boyfriend/ girlfriend) has been treating you more lovingly.**

- Write down the *one* major cause

\_\_\_\_\_

- Is the cause of this new treatment due to something about you or to something about other people or circumstances? (circle one number)

Totally due to other people or circumstances      1   2   3   4   5   6   7      Totally due to me

- In the future when you are treated more lovingly will this cause again be present? (circle one number)

Will never again be present      1   2   3   4   5   6   7      Will always be present

- Is the cause something that just influences your partner treating you more lovingly or does it also influence other areas of your life? (circle one number)

Influences just this particular situation      1   2   3   4   5   6   7      Influences all situations in my life



**11. You go out on a date and it goes badly.**

- Write down the *one* major cause

\_\_\_\_\_

- Is the cause of the date going badly due to something about you or to something about other people or circumstances? (circle one number)

Totally due to other people or circumstances      1   2   3   4   5   6   7      Totally due to me

- In the future when a date goes badly will this cause again be present? (circle one number)

Will never again be present      1   2   3   4   5   6   7      Will always be present

- Is the cause something that just influences this particular situation or does it also influence other areas of your life? (circle one number)

Influences just this particular situation      1   2   3   4   5   6   7      Influences all situations in my life

- How important would this situation be if it happened to you? (circle one number)

Not important at all      1   2   3   4   5   6   7      Extremely important

**12. You get a raise.**

- Write down the *one* major cause

\_\_\_\_\_

- Is the cause of the raise due to something about you or to something about other people or circumstances? (circle one number)

Totally due to other people or circumstances      1   2   3   4   5   6   7      Totally due to me

- In the future when you receive a raise will this cause again be present? (circle one number)

Will never again be present      1   2   3   4   5   6   7      Will always be present

- Is the cause something that just influences whether you get a raise or does it also influence other areas of your life? (circle one number)

Influences just this particular situation      1   2   3   4   5   6   7      Influences all situations in my life

- How important would this situation be if it happened to you? (circle one number)

Not important at all      1   2   3   4   5   6   7      Extremely important

**THANK YOU 😊**

**APPENDIX 4**  
**Test for Explanatory Style**

**MEASURE OF RESPONSE**

**Matriculation Number** \_\_\_\_\_

A variety of situations are presented below. Read the description of each and vividly imagine it happening to you. You have probably not experienced some of the situations but that does not matter. Circle A or B, choosing the cause most likely to apply to you. You may not like the way some of the responses sound, but don't choose what you think you *should* say or what would sound right to other people; choose the response you'd be likelier to have.

Take as much time as you need to answer each of the questions. There are no right or wrong answers. Circle only one response for each question.

1. The project you are in charge of is a great success.
  - A. I kept a close watch over everyone's work.
  - B. Everyone devoted a lot of time and energy to it.
  
2. You and your partner (boyfriend/girlfriend) make up after a fight.
  - A. I forgave him/her.
  - B. I'm usually forgiving.
  
3. You get lost driving to a friend's house.
  - A. I missed a turn.
  - B. My friend gave me bad directions
  
4. You partner surprises you with a gift.
  - A. He/she just got a raise at work.
  - B. I took him/her out to a special dinner the night before.
  
5. You forget your partner's birthday.
  - A. I'm not good at remembering birthdays.
  - B. I was preoccupied with other things.

6. You get a flower from a secret admirer.
- A. I am attractive to him/her.
  - B. I am a popular person.
7. You campaign for a committee position and you win.
- A. I devote a lot of time and energy to campaigning.
  - B. I work very hard at everything I do.
8. You miss an important engagement.
- A. Sometimes my memory fails me.
  - B. Sometimes I forget to check my appointment book.
9. You campaign for a committee position and you lose.
- A. I didn't campaign hard enough.
  - B. The person who won knew more people.
10. You host a successful dinner.
- A. I was particularly charming that night.
  - B. I am a good host.
11. You stop a crime by calling the police.
- A. A strange noise caught my attention.
  - B. I was alert that day.
12. You were extremely healthy all year.
- A. Few people around me were sick, so I wasn't exposed.
  - B. I made sure I ate well and got enough rest.
13. You owe the library five pounds for an overdue book.
- A. When I am really involved in what I am reading, I often forget when it's due.
  - B. I was so involved in writing the report that I forgot to return the book.
14. Your stocks make you a lot of money.
- A. My broker decided to take on something new.
  - B. My broker is a top-notch investor.

15. You win an athletic contest.
- A. I was feeling unbeatable.
  - B. I train hard.
16. You fail an important examination.
- A. I wasn't as smart as the other people taking the exam.
  - B. I didn't prepare for it well.
17. You prepared a special meal for a friend and he/she barely touched the food.
- A. I wasn't a good cook.
  - B. I made the meal in a rush.
18. You lose a sporting event for which you have been training for a long time.
- A. I'm not very athletic.
  - B. I'm not good at that sport.
19. Your car runs out of petrol on a dark street late at night.
- A. I didn't check to see how much petrol was in the tank.
  - B. The petrol gauge was broken.
20. You lose your temper with a friend.
- A. He/she is always nagging me.
  - B. He/she was in a hostile mood.
21. You are penalized for not returning your income-tax forms on time.
- A. I always put off doing my taxes.
  - B. I was lazy about getting my taxes done this year.
22. You ask a person out on a date and he/she says no.
- A. I was a wreck that day.
  - B. I got tongue-tied when I asked him/her on the date.
23. A game-show host picks you out of the audience to participate in the show.
- A. I was sitting in the right seat.
  - B. I looked the most enthusiastic.



24. You are frequently asked to dance at a party.
- A. I am outgoing at parties.
  - B. I was in the perfect form that night.
25. You buy your partner a gift and he/she doesn't like it.
- A. I don't put enough thought into things like that.
  - B. He/she has picky tastes.
26. You do exceptionally well in a job interview.
- A. I felt extremely confident during the interview.
  - B. I interview well.
27. You tell a joke and everyone laughs.
- A. The joke was funny.
  - B. My timing was perfect.
28. Your boss gives you too little time in which to finish a project, but you get it finished anyway.
- A. I am good at my job.
  - B. I am an efficient person.
29. You've been feeling run-down lately.
- A. I never get a chance to relax.
  - B. I was exceptionally busy this week.
30. You ask someone to dance and he/she says no.
- A. I am not a good enough dancer.
  - B. He/she doesn't like to dance.
31. You save a person from choking to death.
- A. I know a technique to stop someone from choking.
  - B. I know what to do in crisis situations.
32. Your romantic partner wants to cool things off for a while.
- A. I'm too self-centred.
  - B. I don't spend enough time with him/her.

33. A friend says something that hurts your feelings.
- A. She always blurts things out without thinking of others.
  - B. My friend was in a bad mood and took it out on me.
34. Your employer comes to you for advice.
- A. I am an expert in the area about which I was asked.
  - B. I am good at giving useful advice.
35. A friend thanks you for helping him/her through a bad time.
- A. I enjoy helping him/her through tough times.
  - B. I care about people.
36. You have a wonderful time at a party.
- A. Everyone was friendly.
  - B. I was friendly.
37. Your doctor tells you that you are in good physical shape.
- A. I make sure I exercise frequently.
  - B. I am very health-conscious.
38. Your partner takes you away for a romantic weekend.
- A. He/she needed to get away for a few days.
  - B. He/she likes to explore new areas.
39. Your doctor tells you that you eat too much sugar.
- A. I don't pay much attention to my diet.
  - B. You can't avoid sugar, it's in everything.
40. You are asked to head an important project.
- A. I just successfully completed a similar project.
  - B. I am a good supervisor.
41. You and your partner have been fighting a great deal.
- A. I have been feeling cranky and pressured lately.
  - B. He/she has been hostile lately.

42. You fall down a great deal while skiing.
- A. Skiing is difficult.
  - B. The trails were icy.
43. You win a prestigious award.
- A. I solved an important problem.
  - B. I was the best employee.
44. Your stocks are at an all time low.
- A. I didn't know much about the business climate at the time.
  - B. I made a poor choice of stocks.
45. You win the lottery.
- A. It was pure chance.
  - B. I picked the right numbers.
46. You gain weight over the holidays and you can't lose it.
- A. Diets don't work in the long run.
  - B. The diet I tried didn't work.
47. You are in the hospital and few people come to visit.
- A. I'm irritable when I'm sick.
  - B. My friends are negligent about things like that.
48. They won't honour your credit card at a store.
- A. I sometimes overestimate how much money I have.
  - B. I sometimes forget to pay my credit-card bill.

Thank you for completing the questionnaire! 😊

## APPENDIX 5

### Life Orientation Test

#### EXPECTANCIES RATING

Matriculation Number: \_\_\_\_\_

Date: \_\_\_\_\_

**Instructions:**

- Indicate the extent to which you agree with each of the following items using the following scale

4	strongly agree
3	agree
2	neutral
1	disagree
0	strongly disagree

1.	In uncertain times I usually expect the best	4	3	2	1	0
2.	It's easy for me to relax	4	3	2	1	0
3.	If something can go wrong for me it will	4	3	2	1	0
4.	I always look on the bright side of things	4	3	2	1	0
5.	I'm always optimistic about my future	4	3	2	1	0
6.	I enjoy my friends a lot	4	3	2	1	0
7.	It's important for me to keep busy	4	3	2	1	0
8.	I hardly ever expect things to go my way	4	3	2	1	0
9.	Things never work out the way I want them to	4	3	2	1	0
10.	I don't get upset too easily	4	3	2	1	0
11.	I'm a believer in the idea that 'every cloud has a silver lining'	4	3	2	1	0
12.	I rarely count on good things happening to me	4	3	2	1	0

## APPENDIX 6

### The Teacher's Sense of Efficacy Scale

#### TEACHING SCENARIOS

Matriculation Number: \_\_\_\_\_

Date: \_\_\_\_\_

Instructions:

- This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities.
- Indicate your opinion about each of the statements below.

		Nothing		Very Little		Some Influence		Quite a bit		A great Deal
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	How much can you do to get through to the most difficult students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2	How much can you do to help your students think critically?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
3	How much can you do to control disruptive behaviour in the lesson?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
4	How much can you do to motivate students who show low interest in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5	To what extent can you make your expectations clear about student behaviour?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6	How much can you do to get students to believe they can do well in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7	How well can you respond to difficult questions from your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	How well can you establish routines to keep activities running smoothly?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
9	How much can you do to help your students value learning?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

10	How much can you gauge student comprehension of what you have taught?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
11	To what extent can you craft good questions for your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
12	How much can you do to foster creativity?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
13	How much can you do to get students to follow classroom rules?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
14	How much can you do improve the understanding of a student who is failing?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
15	How much can you do to calm a student who is disruptive or noisy?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
16	How well can you establish a lesson management system with each group of students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
17	How much can you do to adjust your lessons to the proper level for individual students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
18	How much can you use a variety of assessment strategies?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
19	How well can you keep a few problem students from ruining the entire lesson?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
20	To what extent can you provide an alternative explanation or example when students are confused?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
21	How well can you respond to defiant students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
22	How much can you assist families in helping their children do well in school?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
23	How well can you implement alternative strategies in your lessons?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
24	How well can you provide appropriate challenges for very capable students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

## APPENDIX 7

### Perceived Stress Scale

#### Weekly Responses Scale

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Instructions:

- The questions in this scale ask you about your feelings and thoughts during the last week.
- In each case, please indicate (by circling) how often you felt or thought a certain way.
- The best approach is to answer each question fairly quickly. That is, don't try and count up how many times you felt a particular way, but rather indicate the response that seems like a reasonable estimate.

For each question choose from the following alternatives:

0 = Never   1 = Almost Never   2 = Sometimes   3 = Fairly Often   4 = Very Often

1. In the last week, how often have you been upset because of something that happened unexpectedly?

0- Never   1- Almost Never   2- Sometimes   3- Fairly Often   4- Very Often

2. In the last week, how often have you felt that you were unable to control the important things in your life?

0- Never   1- Almost Never   2- Sometimes   3- Fairly Often   4- Very Often

3. In the last week, how often have you felt nervous and "stressed"?

0- Never   1- Almost Never   2- Sometimes   3- Fairly Often   4- Very Often

4. In the last week, how often have you dealt successfully with irritating life hassles?

0- Never   1- Almost Never   2- Sometimes   3- Fairly Often   4- Very Often

5. In the last week, how often have you felt you were effectively coping with important changes that were occurring in your life?

0- Never   1- Almost Never   2- Sometimes   3- Fairly Often   4- Very Often

6. In the last week, how often have you felt confident about your ability to handle your personal problems?

0- Never   1- Almost Never   2- Sometimes   3- Fairly Often   4- Very Often

7. In the last week, how often have you felt that things were going your way?

0- Never   1- Almost Never   2- Sometimes   3- Fairly Often   4- Very Often

8. In the last week, how often have you found that you could not cope with all the things that you had to do?

0- Never   1- Almost Never   2- Sometimes   3- Fairly Often   4- Very Often

9. In the last week, how often have you been able to control irritations in your life?

0- Never   1- Almost Never   2- Sometimes   3- Fairly Often   4- Very Often

10. In the last week, how often have you felt that you were on top of things?

0- Never   1- Almost Never   2- Sometimes   3- Fairly Often   4- Very Often

11. In the last week, how often have you been angered because of things that happened that were outside of your control?

0- Never   1- Almost Never   2- Sometimes   3- Fairly Often   4- Very Often

12. In the last week, how often have you found yourself thinking about things that you have to accomplish?

0- Never   1- Almost Never   2- Sometimes   3- Fairly Often   4- Very Often

13. In the last week, how often have you been able to control the way you spend your time?

0- Never   1- Almost Never   2- Sometimes   3- Fairly Often   4- Very Often



14. In the last week, how often have you felt difficulties were piling up so high that you could not overcome them?

0- Never   1- Almost Never   2- Sometimes   3- Fairly Often   4- Very Often

## APPENDIX 8

### The Positive and Negative Affect Scales

#### Adjective Checklist

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Instructions:

- This scale consists of a number of words that describe different feelings and emotions.
- Read each item and then mark the appropriate answer in the space next to that word.
- Indicate to what extent you have felt this way during the past week.
- Use the following scale to record your answers.

1	2	3	4	5
very slightly of not at all	a little	moderately	quite a bit	extremely

____ interested	____ irritable
____ distressed	____ alert
____ excited	____ ashamed
____ upset	____ inspired
____ strong	____ nervous
____ guilty	____ determined
____ scared	____ attentive
____ hostile	____ jittery
____ enthusiastic	____ active
____ proud	____ afraid

## APPENDIX 9

### Weekly Symptom Checklist

#### Weekly Checklist

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- Please indicate if you have suffered from any of the following in the last week.

Headaches/Migraines	
Backache/Neck pains	
Muscle Tension/Stiffness	
Diarrhoea or Constipation	
Insomnia	
Chest pains/Palpitations	
Rapid Heartbeat	
Weight gain/loss	
Skins breakouts (rashes/eczema)	
Cold like symptoms	
Nausea	
Heartburn	
Stomach cramps	
Loss of sex drive	
Muscle cramps/spasms	
Faintness/dizziness	
Lack of energy	
Trouble getting your breath	
Hot or cold spells	
Numbness or tingling in parts of your body	
A lump in your throat	
Weakness in parts of your body	
Heavy feelings in your arms or legs	

## APPENDIX 10

### Weekly Diary

#### WEEKLY DIARY

Think back over the last week; make brief notes for each day regarding what happened and how you felt. This allows an opportunity for you to comment on anything specific that you had to respond to during the week and can be related to issues inside and outside of school.

Saturday

Sunday

Monday

Tuesday

Wednesday

Thursday

Friday

## APPENDIX 11

### Placement Booklet Introduction and Instructions

#### Instructions

---

##### Before placement

- Before you go out on placement please complete the three questionnaire located in the front of your booklet.  
Please note these are also printed on double sides.

##### During Placement

- This booklet contains all the self-report measures you will need to complete whilst on placement.
- All questionnaires are labelled and presented in the order that they need to be completed within the booklet.
  - Each Wednesday please complete: the weekly responses scale  
the weekly checklist  
the adjective checklist.
  - On Friday evening please complete (even if only briefly) the reflective diary.
- Please bring the booklet into university with you when you return from placement and they will be collected from you.
- If there are any problems, or you have any questions, please contact Danielle on 0131 651 6043 (office), 07932 141 808 (mobile) or email at [Danielle.L.Bryant@education.ed.ac.uk](mailto:Danielle.L.Bryant@education.ed.ac.uk).

## APPENDIX 12

### CBT-Based Optimism Intervention, Workshop 1 of 4, Slides

#### Positive Thinking

Developing a more optimistic outlook...

#### Aims

- Identify the impact of our thoughts and how we can use them to enhance optimism in teaching.

#### Session Outline

- What is optimism?
- Pros & Cons
- The thought impact!
- Getting started...

#### What is Optimism?!

... “a mood or attitude associated with an expectation about the social or material future – one which the evaluator regards as socially desirable, to their advantage, or their pleasure.”

#### Pros & Cons

Pessimism  
High stress  
Illness  
Anxiety  
Depression  
Quit



Optimism  
Low stress  
Enhanced performance  
High productivity

#### The Impact of Thoughts...

HOW WE THINK ABOUT EVENTS  
HAS A POWERFUL INFLUENCE  
ON HOW WE  
FEEL ABOUT THEM!!

Feelings and behaviours are the result of  
our thoughts.

“everything can be taken from a man but one thing: the last of the human freedoms – to choose one’s attitude in any given set of circumstances, to choose one’s own way”

Viktor Frankl (1985)  
*Auschwitz survivor*

Which path will you choose?



## Optimism Training Process

- Increasing awareness of thoughts
- ↓
- Learned methods to stop and change non-helpful thoughts
- ↓
- Putting this into practice in everyday life.
- ↓
- Re-assessing techniques
- ↓
- More Practise.
- ↓
- Creating and confirming new, helpful thoughts.

## Getting started with ABCs

Adversity —→ Belief —→ Consequence

- When we encounter adversity we react by thinking about it. These thoughts are rapidly congealed into beliefs.
- These beliefs have consequences – they are direct causes of what we feel and do.

## ABCs

### Exercise 1:

Have a go at identifying some ABCs to get a feel for how they work. Study handout 1; the adversity and either belief or consequence have been supplied, try to fill in the missing component.

## Step 1

- Before we can focus on changing them, we must learn to identify negative thoughts.



## Putting this into practice!

### Daily Thought Record

Situation	Automatic Thoughts	Emotions
Describe, clearly and concisely, what happened.	What thoughts went through your mind in that situation?	What were you feeling?

## Becoming aware of your own thoughts

### Exercise 2:

Now turn to handout 2 and have a go at completing your own DTR. Think of an incident that occurred recently which made you feel uncomfortable or anxious. Describe the event clearly and attempt to recall any thoughts and feelings that you experienced during this time.

## Workshop 2 Preparation

- Between now and next week's session, keep your own daily thought record. Each night sit down and record one event that happened to you that day and the relevant thoughts and emotions. Aim to put down at least one a day – more if you can. These events do not have to be related to your course they can be anything!

## Questions?!

## APPENDIX 13

### CBT-Based Optimism intervention, Workshop 1 of 4, Handout 1

#### Handout 1

#### Identifying ABCs

1.    **A. Someone nips into the parking space you had your eye on.**  
      B. You think \_\_\_\_\_  
      C. You get angry, roll down your window, and shout at the other driver.
2.    **A. You yell at a pupil for not doing their homework.**  
      B. You think "I'm a lousy teacher."  
      C. You feel (or do) \_\_\_\_\_
3.    **A. Your best friend hasn't returned your phone calls.**  
      B. You think \_\_\_\_\_  
      C. You're depressed all day.
4.    **A. Your best friend hasn't returned your phone calls.**  
      B. You think \_\_\_\_\_  
      C. You don't feel bad about it, and go about your day.
5.    **A. You and your partner have a fight.**  
      B. You think "I never do anything right."  
      C. You feel (or do) \_\_\_\_\_
6.    **A. You and your partner have a fight.**  
      B. You think "She (he) was in an awful mood."  
      C. You feel (or do) \_\_\_\_\_
7.    **A. You and your partner have a fight.**  
      B. You think "I can always clear up misunderstandings."  
      C. You feel (or do) \_\_\_\_\_

**APPENDIX 14**

**CBT-Based Optimism Intervention, Workshop 1 of 4, Handout 2**

**Daily Thought Record**

<b>SITUATION</b>	<b>AUTOMATIC THOUGHTS</b>	<b>EMOTIONS</b>
Describe, clearly and concisely, what happened.	What thoughts went through your mind in this situation?	What were you feeling?

## APPENDIX 15

### CBT-Based Optimism Intervention, Workshop 2 of 4, Slides

#### Positive Thinking Workshop 2

Developing a more optimistic  
outlook...

#### Aims

➤ Identify ways to challenge and change negative and non-beneficial thoughts in order to optimise teaching performance.

- Identifying non-helpful thinking
- Challenging negative thoughts
- Developing an optimistic outlook

#### Distorted Thinking...

This class is  
impossible!!

I should always  
be the perfect  
teacher!!

Those kids at the  
back are laughing  
at me!!

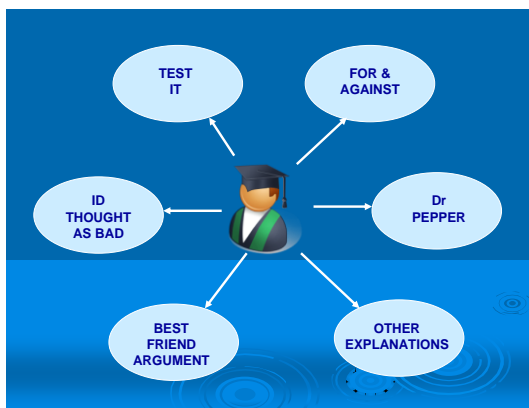


## Do I...??

Exercise 1:

Have a look at the checklist on handout 1, consider the thoughts you noted down during the past week, how you think when you're in the classroom, and in everyday life and ask yourself those questions?

## You are not your thoughts!!



## Optimistic Explanations

<b>Permanence</b>	All ways there _____	Just this once
<b>Personalisation</b>	Because of me _____	Other factors
<b>Pervasiveness</b>	Affects everything _____	Only affects this situation

### Exercise 2:

In groups work your way through handout 2. In each situation your are asked to identify whether the individual's explanations are mainly optimistic or pessimistic. To do this you will have to consider each of the 3P's.

## Changing thoughts!

### Daily Thought Record

Situation Describes, clearly and concisely, what happened	Automatic Thoughts	Emotions	Alternative & Balanced Thoughts	How you feel now?

## Challenging your own negative thoughts...

### Exercise 3:

Turn to handout 3 and have a go at completing your own DTR.

Either continue on from thoughts on last DTR or pick a new situation and have a go at using the techniques we've discussed today to develop alternate thoughts that could have been more beneficial in this scenario.

## Session 3 Preparation

➤ Over the Christmas break try keeping your own DTR. Try to record a couple of thoughts per week. These thoughts do not have to be related to teaching they can be anything!

➤ PRACTICE THESE TECHNIQUES OVER CHRISTMAS!

Questions?!

## APPENDIX 16

### CBT-Based Optimism Intervention, Workshop 2 of 4, Handout 1

#### Handout 1

##### Am I:

- |   |                          |
|---|--------------------------|
| Jumping to conclusions?   | <input type="checkbox"/> |
| Mind-Reading?   | <input type="checkbox"/> |
| Assuming my view of things is the only possible one?  | <input type="checkbox"/> |
| Posing questions that have no answers?  | <input type="checkbox"/> |
| Thinking in all or nothing terms?   | <input type="checkbox"/> |
| Using ultimatum words (musts/shoulds) in my thinking?                                       | <input type="checkbox"/> |
| Totally condemning myself (or someone else) on the basis of a single event?                 | <input type="checkbox"/> |
| Concentrating on my weaknesses and neglecting my strengths?                                 | <input type="checkbox"/> |
| Blaming myself for something that is not really my fault?                                   | <input type="checkbox"/> |
| Taking things personally that have little or nothing to do with me?                         | <input type="checkbox"/> |
| Expecting myself or others to be perfect?   | <input type="checkbox"/> |
| Using a double standard?  | <input type="checkbox"/> |
| Paying attention only to the negative side of things?                                       | <input type="checkbox"/> |
| Overestimating the chances of disaster?   | <input type="checkbox"/> |
| Exaggerating the importance of events?  | <input type="checkbox"/> |
| Fretting about how things should be instead of accepting and dealing with them as they are? | <input type="checkbox"/> |
| Assuming that I cannot do anything to alter the situation?                                  | <input type="checkbox"/> |
| Predicting the outcome instead of experimenting with it?                                    | <input type="checkbox"/> |

## APPENDIX 17

### CBT-Based Optimism Intervention, Workshop 2 of 4, Handout 2

#### Handout 2

#### Distorted Thinking

- 1. All or Nothing Thinking:** Situations are viewed in 'either/or' terms, there is not middle ground. For example: "you're either a success or a failure in life, I'm a failure."
- 2. Should and Must Statements:** often unreasonable statements or beliefs that cause high levels of pressure. For example: "My work should always be perfect."
- 3. Personalisation:** Making everything about you. For example: walking past a group of people who are laughing and believing they are laughing at you.
- 4. Discounting the positive:** only considering the negative information and conveniently forgetting any positive evidence. For example: a netball goal shooter believes she's useless after playing poorly and missing lots of shots in one game; she fails to consider all the previous games where she played well.
- 5. Magnification and Minimisation:** Magnifying one's weaknesses and minimising their strengths. For example: A rugby player believes he's rubbish because he focuses on not being quick enough opposed to focusing on having good skills.
- 6. Jumping to Conclusions:** making rushed judgements. For example: a pupil claims not to be able to throw a free throw in basketball after having attempted it twice.
- 7. Labelling:** attaching labels to oneself opposed to one's behaviour. For example: I failed one of my exams therefore I am a failure.
- 8. Emotional Reasoning:** assuming feelings are facts. For example: I feel stupid so it must be true.
- 9. Mind Reading:** discerning the thoughts of others without any accompanying evidence. For example: my friend didn't text back so she must be angry at me.



## APPENDIX 18

### CBT-Based Optimism Intervention, Workshop 2 of 4, Handout 3

#### Handout 3

#### Methods of Challenging Negative Thoughts

- 1. Examining the evidence for and against:** consider what evidence you're basing your thought on – aim to identify evidence that challenges the negative.
- 2. Advantages and disadvantages:** list the advantages and disadvantages of thinking in that particular way. Aim to tease out more disadvantages for the negative thought in order to motivate change.
- 3. Decatastrophising (Dr Pepper):** What's the worst that could happen?! Take the horror out of the negative thought by seeing yourself dealing with the catastrophic prediction. Challenge your negative thought with a "what if..." statement.
- 4. Constructing alternative explanations:** consider any other possible explanations and rate which one is more realistic.
- 5. Best friend argument:** exploring the use of double standards – would you be this tough on your best friend? If not why are you being so tough on yourself? Treat yourself as you would him/her.
- 6. Labelling of cognitive distortions:** Simply identifying if any of your thinking matches up to distorted thinking. Motivates change.
- 8: Behavioural Experiments:** test the validity of your thoughts by facing your fear.

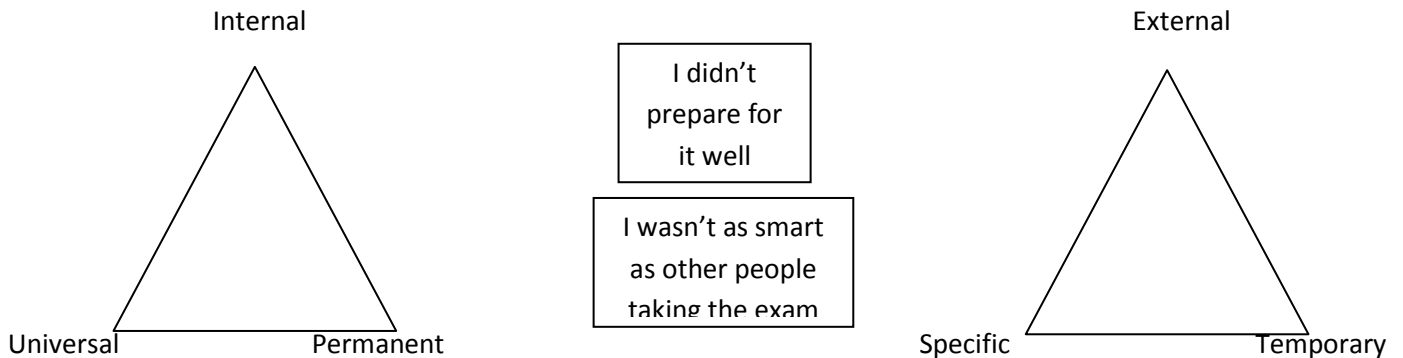
## APPENDIX 19

### CBT-Based Optimism Intervention, Workshop 2 of 4, Handout 4

#### Handout 4 Identifying Explanatory Styles

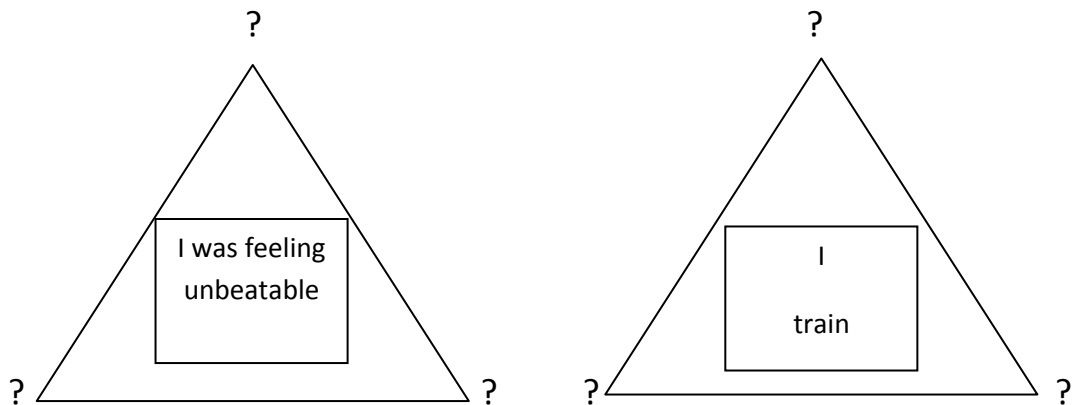
1. Determine which triangle each explanation belongs in, identify which triangle is optimistic and which is pessimistic.

**Situation: Failing an important exam...**



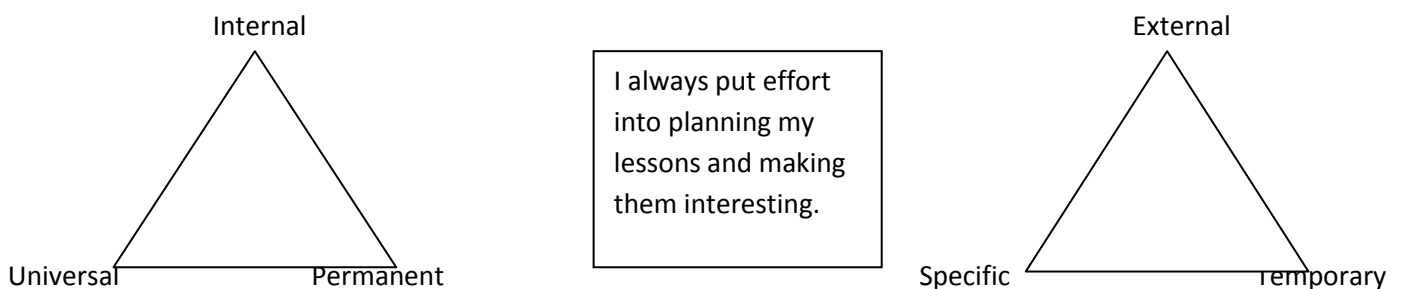
2. Identify which triangle represents an optimistic and pessimistic explanatory style based on this person's explanations.

**Situation: Winning an athletics competition...**



3. Which triangle does the following explanation belong in?

**Situation: A class responds positively to one of your lessons...**



5. Identify which aspects of the following explanation represent each of the 3P's. Are they optimistic or pessimistic and why? Overall would you say this individual's attitude is optimistic or pessimistic?

**Situation: The class this individual was teaching was extremely rowdy and paid little attention...**

"Well it was the last day of term and they were probably all excited. I probably didn't make it interesting, or fun, enough for them."

## APPENDIX 20

### CBT-Based Optimism Intervention, Workshop 2 of 4, Handout 5

#### Daily Thought Record

<b>Situation</b>	<b>Automatic Thoughts</b>	<b>Emotions</b>	<b>Alternative Responses</b>	<b>Outcome</b>
Describe, clearly and concisely, what happened.	What thoughts went through your mind in this situation?	What were you feeling?	What might be more helpful and balanced responses to your automatic thoughts?	How do you feel now?

## APPENDIX 21

### CBT-Based Optimism Intervention, Workshop 3 of 4, Slides

#### Positive Thinking

Developing a more optimistic outlook...

#### Aims

- Discuss methods so far and start putting them into practice with each other.
- What's stressing you out now?!

#### Example...

Situation	Automatic thoughts	Emotions	Alternative & balanced thoughts	How do you feel now?
Describe clearly and concisely what happened	Rate believability of thoughts 0%-100%	Rate intensity of emotions 0%-100%	Rate believability of alternative thoughts 0%-100%	Re-rate intensity of emotions 0%-100%
Spent a lot of time and effort planning basketball lesson.	Why don't they get it, it's obvious.	Frustration		
Taught the basic lay up but none of the pupils are picking it up.	This is disrupting my lesson plan, what will I do now?	Panic		

#### Example...

Situation	Automatic thoughts	Emotions	Alternative & balanced thoughts	How do you feel now?
Describe clearly and concisely what happened	Rate believability of thoughts 0%-100%	Rate intensity of emotions 0%-100%	Rate believability of alternative thoughts 0%-100%	Re-rate intensity of emotions 0%-100%
Spent a lot of time and effort planning basketball lesson.	Why don't they get it, it's obvious.	Frustration	There could be many reasons: It's a complex skill so I'll bring them back in and break it down.	In control
Taught the basic lay up but none of the pupils are picking it up.	This is disrupting my lesson plan, what will I do now?	Panic	Tired/cold	Effective More relaxed

#### Group Work

- Split into groups of 3 and find your own space in the room.
- Person A tell the others a situation, thought and emotion from your DTR.
- Person B & C identify any cognitive distortion and develop an alternative thought.
- Person A identify your alternative thought.
- All: discuss what emotions would've resulted from these thoughts and which would be more appropriate for the relevant situation.

#### Current stressors?!



## What Now... ?!

Practice makes perfect...

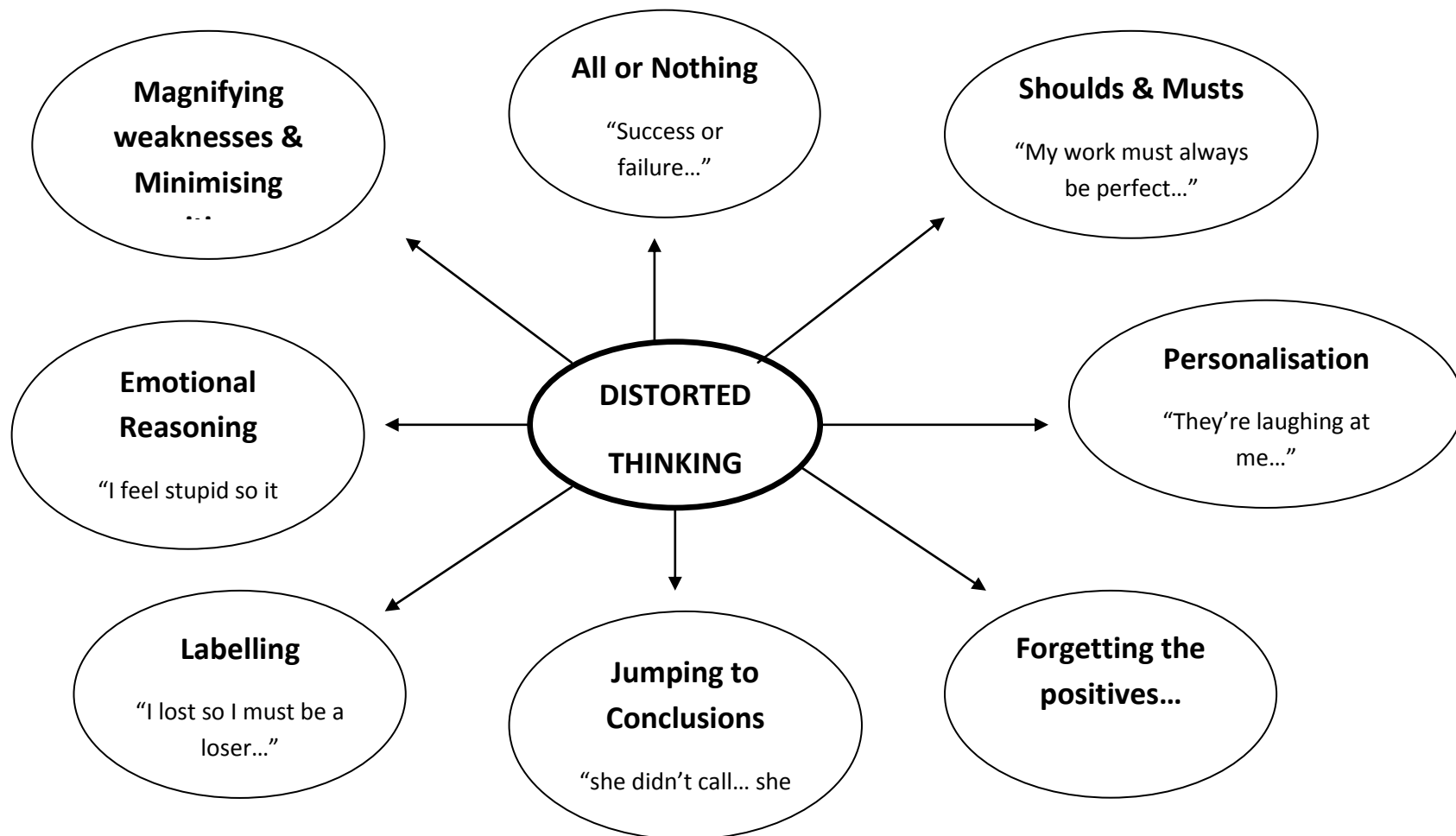
- Self-instruct
- Impromptu practise with organised practise
- Feedback

Thank You

Questions?!

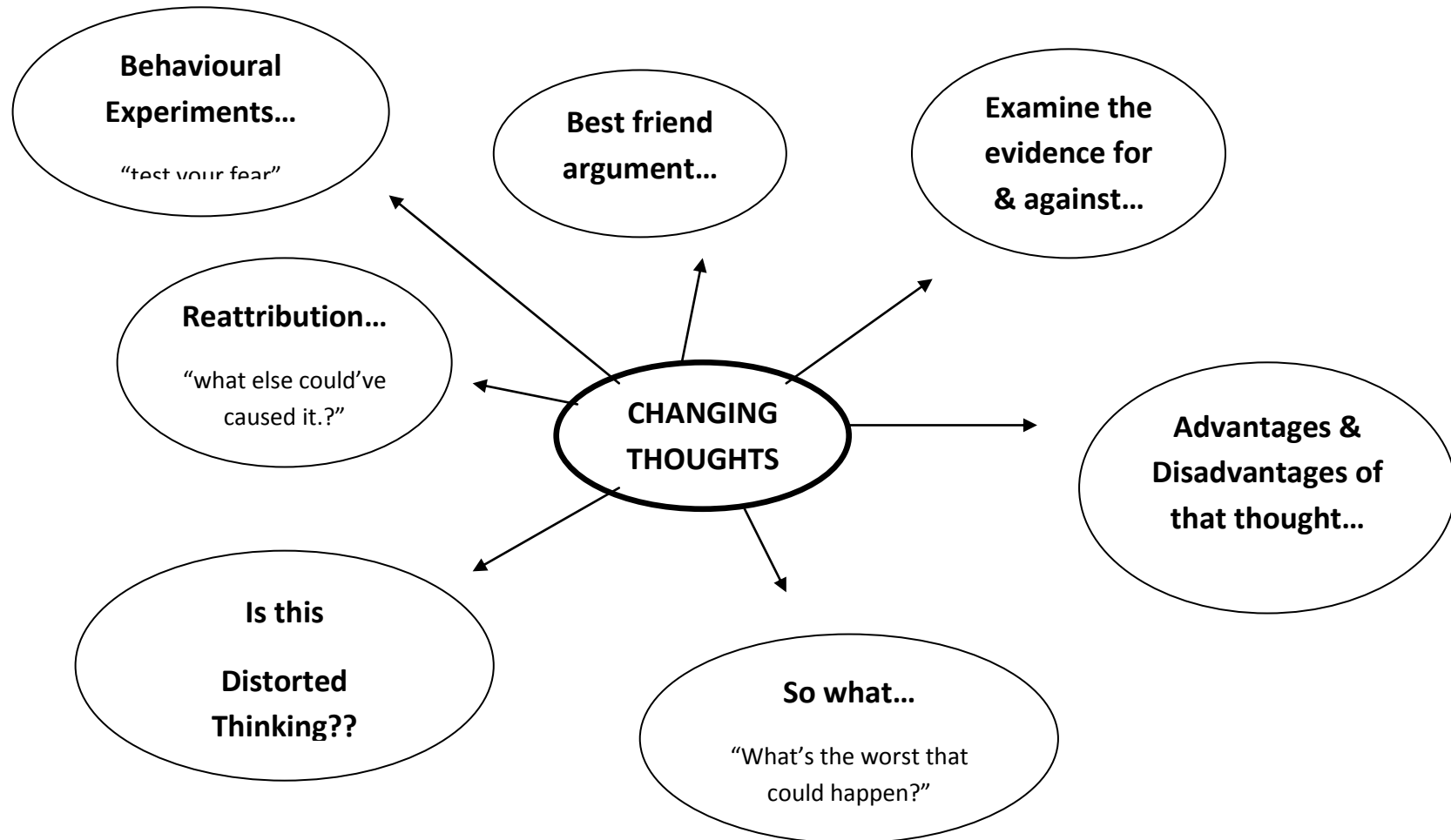
## APPENDIX 22

### CBT-Based Optimism Intervention, Workshop 3 of 4, Handout 1



## APPENDIX 23

### CBT-Based Optimism Intervention, Workshop 3 of 4, Handout 2





## **APPENDIX 24**

### **CBT-Based Optimism Intervention, Workshop 3 of 4, Handout 3**

#### **Discussion Exercise**

##### Instructions

- Take it in turns to volunteer a thought from your DTR kept over the last week. Try and get round everyone twice.
- Person A: tell the other two the relevant situation, thought and subsequent emotion.
- Persons B & C aim to identify if any cognitive distortion was present in this train of thought. Then each develop an alternative thought that would have been more beneficial in this situation.
- Person A: Explain the alternative thought you came up with.
- A, B & C: discuss the plausibility/reliability of each alternative thought and the emotions they would've resulted in. Which would be best for this situation?
- Use the table on the other side to help structure your discussions.

	1	2	3
Was any cognitive distortion present in this case? If so identify which one.			
What would a suitable alternative have been?			
Discuss what emotions these could have led to?			

## APPENDIX 25

### CBT-Based Optimism Intervention, Workshop 4 of 4, Slides

#### Positive Thinking

Developing a more optimistic outlook...

#### Recap



When something bad happens...

##### Optimists believe:

- It won't always be the same
- They're not entirely to blame
- It won't affect other areas of their life

##### Pessimists believe:

- The reason will always be there
- Assume because of them
- Affects everything in their life

When something good happens...

##### Optimists believe:

- The reason will always be there
- Because of them
- It will affect other areas of their life

##### Pessimists believe:

- It was just a one off
- Assume not because of them
- Affects nothing else in their life

#### Placement Scenarios



Questionnaires!!

Questions!

**APPENDIX 26**

**Prolonged CBT-Based Optimism Intervention, One-to-One Session outline**

**RECORD**

SITUATION	THOUGHTS	EMOTIONS	ALTERNATIVE THOUGHTS	GOALS FOR FUTURE

## APPENDIX 27

### Interview Guide for CBT and CBT+ Group Participants

#### QUESTIONS

Intro – First 20 minutes discussing what you're doing at the moment , then for the next 15 minutes or so we'll look back at some of the optimism training and then finally we'll conclude with a brief comparison of the experiences during the PGDE and teaching full-time.

10 mins	Q	To begin with I'd like you to spend three or four minutes just describing how teaching's going so far. Things like how you're finding it full time, what you're enjoying, how has it differed to your expectatiosn?	Prompt	What do you feel are you strengths?  What areas push you out of your comfort zone?  What have been the biggest stressors for you thus far?	Probe	Can you give me any examples?  How so?  Why do you think that is?	Why	
10 mins	Q	Can you tell me about a time when something good happened at work?  Can you tell me what you thought at the time?	Prompt		Probe	What did you think at the time?	Why	Assess current use of skills.
	Q	Why do you think you thought about it in that way?	Prompt	How did that make you feel?	Probe	Why did you change your thoughts?		

		What was your rationale?				Was it because of something you did?		
						Do you expect it will happen regularly?		
						How did this incident effect you for the rest of the day?		
	Q	How did that influence your expectations about such incidents in the future?	Prompt		Probe			
10 mins	Q	Can you tell me about a time when something good happened at work?  Can you tell me what you thought at the time?	Prompt		Probe	What did you think at the time?	Why	Assess current use of skills.
	Q	Why do you think you thought about it in that way? What was your rationale?	Prompt	How did that make you feel?	Probe	Why did you change your thoughts?  Was it because of something you did?  Do you expect it will happen regularly?		

						How did this incident effect you for the rest of the day?		
	Q	How did that influence your expectations about such incidents in the future?	Prompt		Probe			
Now I'd like to ask you some questions relating to the optimism training you took part in last year during the PGDE.								
5 mins	Q	Do you think you used the skills in either positive or negative situation you just described?	Prompt	Have you used them in any other teaching related situation we haven't discussed?	Probe	Can you give me an example of how you used them?		
5 mins	Q	On a scale of 1 – 10 how much do you feel you remember of the optimism training?	Prompt		Probe		Why	Assess Retention  Assess awareness of using skills
2 mins	Q	On a scale of 1 – 10 (1 being not at all and 10 being extremely), when a situations arisen in which you could use these skills, how often have you used them?	Prompt		Probe		Why	Assess retention.



2 mins	Q	On a scale of 1 – 10, how effective have you found these skills to be in such situations.	Prompt		Probe	Can you give me an example of how/why it was effective?	Why	Assess perceived effectiveness.
5mins	Q	On a scale of 1 – 10 to what extent have you applied these skills to other areas of your life?	Prompt		Probe	Can you give me an example of how?	Why	Assess retention/practice.
5 mins	Q	Do you think the skills are beneficial?	Prompt	On a scale of 1 – 10?  Do you think they would be beneficial for future student teachers undergoing the PGDE?	Probe		Why	Assess perceived effectiveness and motivation to uphold skill use.
5 mins	Q	How have your experiences so far been different or similar to your training?	Prompt	How similar is this experience to being on placement?	Probe	Can you give me an example?	Why	Assess differences and identify whether skills were more useful during training etc.
6 mins	Q	What do you feel were the three top stressors during you PGDE year?	Prompt		Probe	Why do you think that is?  Can you give me an example?	Why	Identify changes so future interventions can consider this.

		What do you feel are the three main stressors in your job at the moment?	Prompt		Probe			
		To what extent do you feel the skills acquired last year are beneficial to helping deal with the stressors then and now?	Prompt		Probe			

## APPENDIX 28

### Interview Guide for Control Group Participants

#### QUESTIONS

Intro – First 20 minutes discussing what you're doing at the moment , then for the next 15 minutes or so we'll look back at some of the optimism training and then finally we'll conclude with a brief comparison of the experiences during the PGDE and teaching full-time.

10 mins	Q	To begin with I'd like you to spend three or four minutes just describing how teaching's going so far. Things like how you're finding it full time, what you're enjoying, how has it differed to your expectations?	Prompt	What do you feel are your strengths?  What areas push you out of your comfort zone?  What have been the biggest stressors for you thus far?	Probe	Can you give me any examples?  How so?  Why do you think that is?	Why	
10 mins	Q	Can you tell me about a time when something good happened at work?  Can you tell me what you thought at the time?	Prompt		Probe	What did you think at the time?	Why	Assess current use of skills.
	Q	Why do you think you thought about it in that way?	Prompt	How did that make you feel?	Probe	Why did you change your thoughts?		

		What was your rationale?				Was it because of something you did?  Do you expect it will happen regularly?  How did this incident effect you for the rest of the day?		
	Q	How did that influence your expectations about such incidents in the future?	Prompt		Probe			
10 mins	Q	Can you tell me about a time when something good happened at work?  Can you tell me what you thought at the time?	Prompt		Probe	What did you think at the time?	Why	Assess current use of skills.
	Q	Why do you think you thought about it in that way? What was your rationale?	Prompt	How did that make you feel?	Probe	Why did you change your thoughts?  Was it because of something you did?  Do you expect it will happen regularly?		

						How did this incident effect you for the rest of the day?		
	Q	How did that influence your expectations about such incidents in the future?	Prompt		Probe			
Okay, now I'd like to talk to you about how you feel to deal with stressful situations in general. And reflect on the PGDE year as well as this year.								
	Q	Do you usually respond to situations in that way?	Prompt		Probe	Can you give me an example?	Why	Are skills present, intentional.
	Q	Do you find that you think about situations in a certain type of way?						
5 mins	Q	How have your experiences so far been different or similar to your training?	Prompt	How similar is this experience to being on placement?	Probe	Can you give me an example?	Why	Assess differences and identify whether skills were more useful during training etc.
6 mins	Q	What do you feel were the three top stressors during you PGDE year?	Prompt		Probe	Why do you think that is?  Can you give me an	Why	Identify changes so future interventions can

						example?		consider this.
		What do you feel are the three main stressors in your job at the moment?	Prompt		Probe			
		How have you dealt with these stressors?	Prompt		Probe			

